Namco 1651 Blalock, Houston, TX 77080 * (713) 932-8293 * (713) 932-7605 * (800) 634-5816

Manufacturers of Carpet Cleaning Equipment, Chemicals, and Janitorial Supplies.

Operation Manual for The Scooter™

CONTENTS

We **Namco Manufacturing, Inc.** (herein after referred to as **NAMCO**), hereby warranty all Namco Cleaning Equipment against defects of workmanship, parts and labor under the condition that the PURCHASER BUY AND USE CHEMICALS FROM **NAMCO** ONLY.

The motors and pump have a one (1) year pro-rated warranty, excluding labor, as follows:

PARTS PRO-RATED OVER 1 YEAR	***CHARGE TO THE CUSTOMER***
0 - 90 days	***NO CHARGE FOR PARTS***
3 - 6 months	***25% of the List Price for Parts***
7 - 9 months	***50% of the List Price for Parts***
10 - 12 months	***75% of the List Price for Parts***

THE WARRANTY IS LIMITED TO 90 DAYS ON LABOR. Thereafter, labor will be charged to the customer at the prevailing hourly rate.

Namco Manufacturing, Inc. is not responsible for any work performed on, equipment furnished thereto or repairs effected upon any of its products by other than **Namco Manufacturing, Inc.** or authorized dealer personnel.

The Warranty obligation extends only to the repair or replacement of parts found, upon **Namco Manufacturing, Inc.** examination to be defective. Abuse or negligent to the unit will void manufacturer warranty.

The foregoing constitutes Namco's entire warranty and no other warranty, liability, contingency or responsibility, direct, indirect, consequential or in any other way connected with the sale or operation of Namco's machine or chemical products is expressed or implied.

NOTICE: TO AVOID DAMAGES AND CANCELLATION OF WARRANTY USE ONLY NAMCO PRODUCTS AND FAILURE TO COMPLETE AND RETURN THE ATTACHED WARRANTY RECORDS CARD WITHIN TEN (10) DAYS OF RECEIPT OF MACHINE BY PURCHASER WILL VOID THE WARRANTY.

NOTICE THIS WARRANTY DOES NOT APPLY TO ABUSE OF EQUIPMENT WHICH WILL BE DETERMINID BY NAMCO.

Namco
MANUFACTURING, INC.
1651 BLALOCK RD.
HOUSTON, TX 77080
Purchaser:_____

Equipment:_____

Identification number:_____***Date Purchased:***_____

MUST BE TURNED IN WHEN MACHINE IS DELIVERED OR WARRANTY WILL BE VOIDED

NOTE

WHEN DYEING CARPET, IT IS ADVISABLE TO LEAVE THE SCOOTER OUTSIDE OF PREMISES IN ORDER TO AVOID SPILLAGE

1. WHEN THE MACHINE IS DELIVERED

Check the carton and machine carefully for signs of rough handling. Remove the machine from the carton. **IF THE MACHINE IS DAMAGED, NOTIFY THE CARRIER IMMEDIATELY AND REQUEST AN INSPECTION.** Be sure to keep the carton, packing list, packing inserts and carrier's receipt until the inspector has verified your claim. Manufacturer's liability ceases when carrier picks up the machine or shipment.

2. BEFORE OPERATING THE MACHINE

Read the Manual carefully and completely before attempting to operate the unit. This Manual has important information for the use and safe operation of the machine. Keep this manual handy at all times.

3. GENERAL PRECAUTIONS

1. Make sure the machine is plugged into an electrical outlet with the same voltage as shown on the switch plate of the machine. DO NOT attempt to plug a 115-volt machine into a 220-volt outlet.

2. Disconnect power cord from the outlet before attempting maintenance or repair work. **DO NOT** leave machine connected to an electrical outlet when unattended.

3. **DO NOT** abuse power cord. Never pull the machine by the cord or yank the plug from the receptacle. The machine is operated on a wet carpet and a potential shock hazard can result from a damaged cord. Replace a damaged cord immediately.

4. **DO NOT** operate machine in standing water. Such use can cause electrical shock.

5. **DO NOT** use volatile substances such as gasoline or kerosene in the machine or on or near the surface to be cleaned. The use of such materials could cause an explosion and fire.

6. If an extension cord is necessary, use a three conductor grounded cord 12 gauge wire or heavier to prevent motor burnout and over heating of wire.

7. To avoid electric shock, **DO NOT** expose to rain - store indoors.

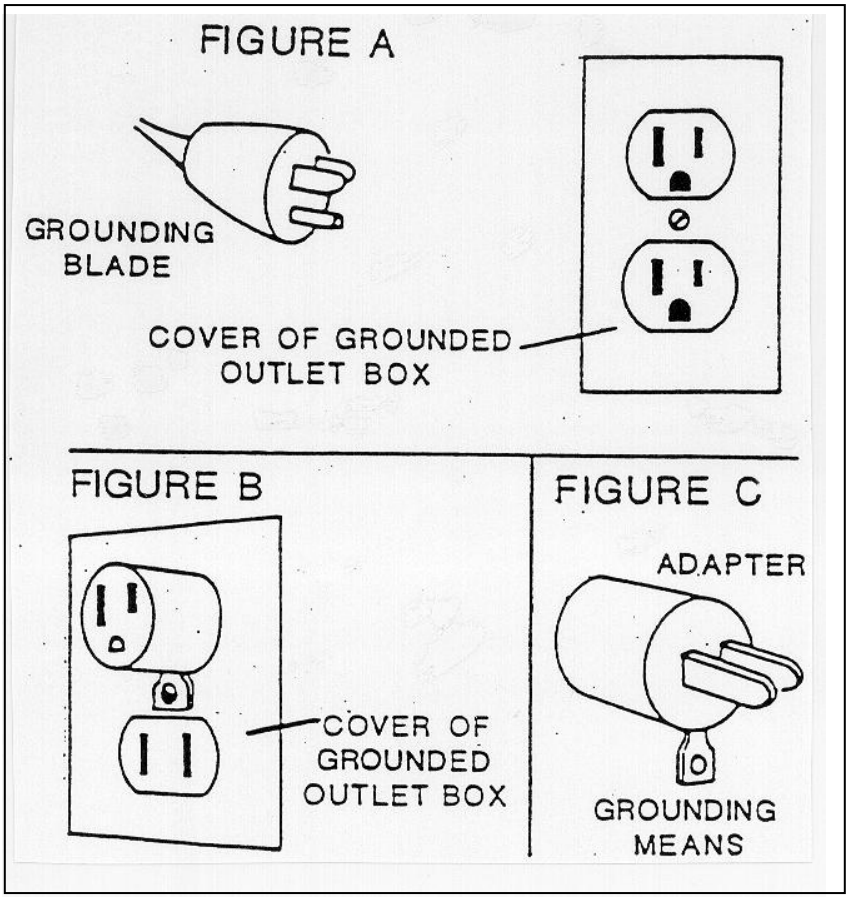
4. GROUNDING INSTRUCTIONS

To protect the operator from electrical shock, the machine is factory equipped with an approved three-conductor cord and grounding plug. **(figure A - see page 2)**

This plug is to be used only with proper grounding type receptacles.

The machine has a plug like the one shown in figure A. An adapter **(figure B & C - see page 2)** is available for connecting three prong type plugs to two prong receptacles. The green rigid lug extending from the adapter must be connected to a permanent grounding such as a properly grounded outlet box. DO NOT break off or pull out the grounding blade.

4. GROUNDING INSTRUCTIONS



WARNING !

NEVER connect the green wire to a live terminal.
This machine is to be used on an electrical circuit of 110 to 120 volts AC.

The extractor is engineered and designed to require minimum maintenance. But like any machine, it does require some care to keep it in optimum working condition. Careful attention to these maintenance instructions will give you maximum operating performance and increase the life of your machine.

CAUTION: Disconnect power cord from the outlet before doing any maintenance work on the machine.

Flush machine and accessories after each use or at least once a day with clean water.

1. SOLUTION FILTER SCREEN

Outside attached to the Solution Hose there is a filter screen that serves as a filter to prevent dirt or debris from getting into the pump. Clean as needed.

2. VACUUM FILTER

Always keep the filter clean in order to maintain maximum suction and airflow performance from the vacuum motors. The filter also prevents lint from accumulating in the fan chamber thus increasing the productive life of the motor. DO NOT operate the machine without the filter installed! If the filter gets dirty or damage, replace immediately.

3. VACUUM MOTORS

Brush mechanisms (carbon brush, spring and holder) should be replaced after 500 hours or when the carbon brushes are worn down. Both brushes should be replaced at the same time. If there is excessive sparking have vacuum motors checked immediately to prevent possible electrical shock or damage to motors. Also check bearings for excessive play on fan. If any play replace the motor immediately. NOTE: Avoid overflowing of the recovery tank. Damage could result from excessive water in vacuum motors.

4. ELECTRICAL

Inspect for any wires with frayed insulation. Check for loose connections and/or corroded terminals. Check wire nuts for tightness. Check plug end for bent or loose prongs and if necessary replace with approved plug. Unit must always be grounded or electrical shock could occur.

1. IDENTIFYING YOUR SCOOTER MACHINE

THE SCOOTER 1000 JR
DIMENSIONS:
40 ½" H x 16" W

THE SCOOTER 2000AP
DIMENSIONS:
44" H x 16" W

(BACK SIDE CAGE)

1 ea. 12 A.G. 25ft.
POWER CORD

THE PISTOL

DIMENSIONS:
44" H x 16" W

(FRONT SIDE CAGE)

DUMP VALVE AT FRONT SIDE
1 ea. 12 A.G. 25ft.
POWER CORD

THE SCOOTER
40001 HUSKY

DIMENSIONS:
44" H x 16" W

(BACK SIDE CAGE)

2 ea. 12 A.G. 25ft.
POWER CORD

2. ELECTRICAL SYSTEM

PROBLEM	POSSIBLE CAUSE	HOW TO REPAIR
No electrical power	1. Defective cord. 2. Circuit breaker off or fuse blown or blow circuit blower. 3. Not using 20 Amp circuit breaker.	1. Replace 2. Turn circuit breaker on or replace fuse. Unplug any equipment using the same circuit 3. Use 20 amp circuit breaker
Switch is turned on, power is intermittent to all motors.	1. Faulty electrical cable. 2. Defective Switch. 3. Loose terminal or corroded connector	1. Repair or replace. 2. Replace 3. Replace
Electrical Shock	1. Equipment not grounded	1. Replace grounded outlet.

NOTE: Must use two (2) circuit breakers when using 2 power cords.

3. VACUUM SYSTEM

PROBLEM	POSSIBLE CAUSE	HOW TO REPAIR
Vacuum motor on, little or no vacuum on suction head (wand) or upholstery tool.	1. Lid is not closed. 2. Hose or wand clogged. 3. Drain valve not closed. 4. Loose or no vacuum hose connection inside the machine. 5. Clogged ball float. 6. Lint accumulation in fans.	1. Close lid. 2. Clean 3. Push drain valve handle down. 4. Check interior vacuum hose & connect to the right adapter on motor. 5. Clean filter 6. Remove & clean motor fans.
Not enough Vacuum Power at the machine.	1. Accumulate dirt on the ball float cage & filter. 2. Worn out lid gasket. 3. Lint & dirt build-up on suction head (wand). 4. Defective vacuum hose or cracked hose.	1. Clean 2. Replace 3. Clean 4. Replace
Vacuum motor runs intermittently.	1. Worn out brush Assem. 2. Brushes worn out.	1. Replace 2. Replace

4. PUMP SYSTEM

PROBLEM	POSSIBLE CAUSE	HOW TO REPAIR
Pump motor does not go on.	1. Faulty motor. 2. Pressure switch defective. 3. Pump switch defective 4. Loose wire connection. 5. Pump pressure switch defective. 6. Defective motor or rectifier. 7. Male & female connector not connected.	1. Replace. 2. Release pressure. 3. Replace. 4. Tighten connections. 5. Replace. 6. Replace. 7. Push male connector all the way into female connector.
Loss of pump pressure with wand valve open, spray from wand below normal.	1. Pump suction hose sucking air. 2. Solution filter screen is plugged. 3. Pump check valve worn or dirty 4. Bad pump. 5. Malfunction in the wand valve. 6. Hose quick connect bad or clogged with lint. 7. Syphon Hose kinked or collapsed	1. Replace hose or keep solution control handle depressed until air is completely out of line. 2. Remove & clean 3. Clean debris from pump. If worn replace. 4. Repair or replace. 5. Repair or replace. 6. Replace or cleaning on front of machine & all hoses. 7. Replace Hose.
Uneven or weak spray from tip.	1. Clogged or dirty spray tip. 2. Accumulated dirt in Solution line. 3. Dirty filter screen	1. Clean tip, hoses & control valve. 2. Clean 3. Clean, located behind tip
Pump fails to turn off when the wand valve is closed.	1. Defective pressure switch. 2. Defective internal part of pump.	1. Replace 2. Locate defective part or replace.
Pump motor runs intermittently.	1. Damaged carbon brushes. 2. Brushes worn out 3. Thermal overload. 4. Pressure switch needs adjustment.	1. Replace. 2. Replace. 3. Replace. 4. Adjust hex screw on front of pump left or right until pressure builds up. **(turn slightly)** No more than one turn either way.

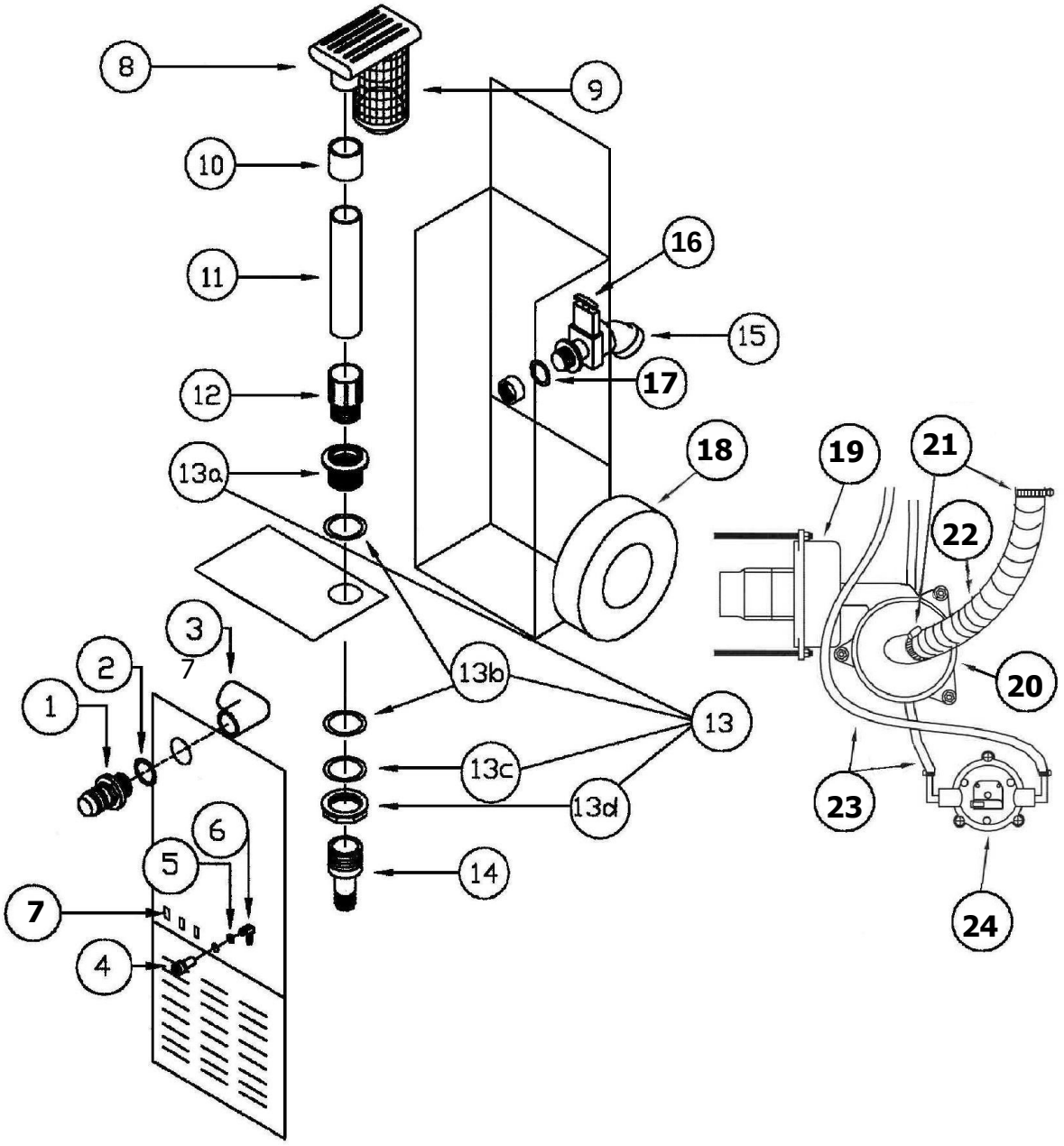
4. PUMP SYSTEM

PROBLEM	POSSIBLE CAUSE	HOW TO REPAIR
No pressure or solution at all.	1. Both male & female quick disconnects not plugged in properly. (most common cause of pump not working)	1. Using process of elimination. Insert hard rubber on the end of a pencil into female quick disconnect on front of machine with pump on. If water sprays out of this connector, do the same thing at the end of your solution hose connect. If solution comes out of this hose, then you know your problem is in the wand.

5. SHUR FLO PUMP ASSY

No.	PART No.	DESCRIPTION
1	P316	SHUR FLO PUMP 100 PSI
2	P394	SHUR FLO PRESSURE SWITCH
3	P373	SHUR FLO UPPER HOUSING
4	P372	SHUR FLO VALVE PLATE KIT
5	P375	SHUR FLO DIAPHRAGM AND PISTON KIT
6	P374	SHUR FLO DRIVE KIT
7	P391	SHUR FLO HOSE BARB 3/8" X 3/8"

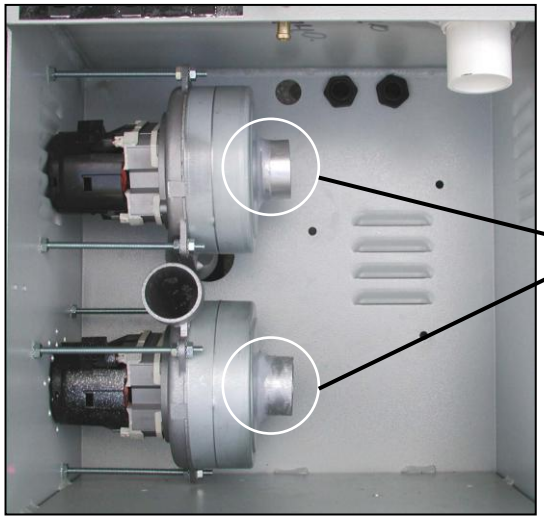
6. SERVICE KIT FOR STAND PIPE ASSY COMPLETE AND DUMP VALVE



No.	PART No.	DESCRIPTION
1	P265	1 ½" MALE HOSE BARB
2	G1RR	RRR GASKET
3	P408	FEMALE THREAD X FEMALE SLIP 90º 1 ½"
4	P489	QUICK CONNECT FEMALE ¼"
5	P416	WASHA 9/16" STAINLESS STEEL
6	P114	HOSE BARB 90º BRASS ¼" x 3/8"
7	P292	ROCKER SWITCH
8	P287	FLOAT ASSY
9	P313	BALL AND CAGE
10	P112	1 ½" PVC SLIP x SLIP
11	P312	17 ½" X 1 ½" PVC
12	P402	MALE THREAD 1½" X FEMALE SLIP 1 ½"
13	P413	LUCKNUT FITTING 1 ½" ASSY
14	P540	HOSE BARB 1 ¼" x 1 ½" MALE THREAD

No.	PART No.	DESCRIPTION
15	P417	DOWN SPOT
16	P280	DUMP VALVE 1 ½"
17	G657	1 ½" RUBBER GASKET
18	P333	PNEUMATIC WHEEL 10"
19	P340	VACUUM MOTOR SMALL, 2 STAGE STRAIGHT
19	P377	VACUUM MOTOR SMALL, 3 STAGE STRAIGHT
20	P340C	VACUUM MOTOR SMALL, 2 STAGE SLANT
20	P377C	VACUUM MOTOR SMALL, 3 STAGE SLANT
21	P278	HOSE CLAMPS WORN GEAR 1 $^{13}/_{16}$"–2 ¾"
22	P415	WIRE HOSE 2"
23	P392	GRAY HOSE 3/8" – 2FT
24	P316	SHUR FLO PUMP 100 PSI
24	P316	SHUR FLO PUMP 150 PSI

PARTS – MOTORS IDENTIFYING YOUR SCOOTER 2-STAGE OR 3 STAGE VACUUM MOTORS (BLACK OR GRAY)

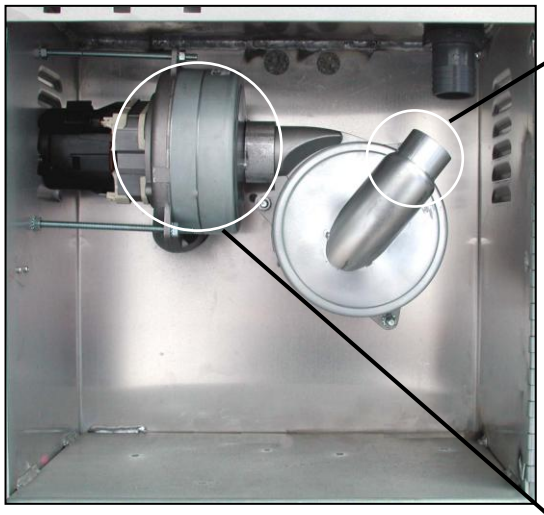


#P340
VACUUM MOTOR SMALL
2 STAGE STRAIGHT
2" HOSE CONNECTOR

#P377
VAC MOTOR SMALL
3 STAGE STRAIGHT
2" HOSE CONNECTOR

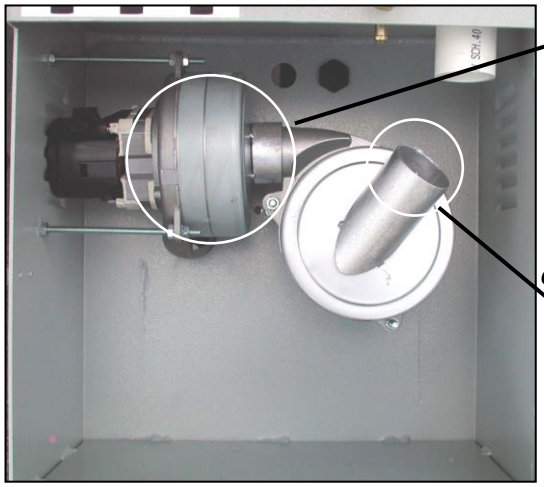
#P340A
VACUUM MOTOR SMALL
2 STAGE SLANT
1 ½" HOSE CONNECTOR

#P377A
VAC MOTOR SMALL
3 STAGE SLANT
1 ½" HOSE CONNECTOR



#P340B
VAC MOTOR SMALL
2 STAGE STRAIGHT
2 1/8" HOSE CONNECTOR

#P377B
VAC MOTOR SMALL
3 STAGE STRAIGHT
2 1/8" HOSE CONNECTOR



#P340C VAC MOTOR SMALL
2 STAGE SLANT
2" HOSE CONNECTOR

#P377C
VAC MOTOR SMALL
3 STAGE SLANT
2" HOSE CONNECTOR

Use 50% Less Water And Chemical For Carpet Cleaning

New way to clean carpets and leave it squeaky clean, just spray down a diluted formula of Namco's Magnum Blue Pre-Sprayer, then rinse with Namco's Acid Rinse Fast Dry Carpet Cleaning Solution.

You can literally blast food stains, tar, oil, and grease away with using Namco's 100-PSI Pre-Sprayer with a 36" wand or Namco's Scooter. The pressure is right down on the stain, including traffic areas in front of kitchen doors and living areas. Let set for 3-5 minutes, and then rinse with Namco's Low pH Fast Dry.

Our "new" Fast Dry Rinse not only leaves carpet and upholstery squeaky clean, you eliminate carpet deodorizers, which have soap in them. You also eliminate brown stains in carpet created by a high pH cleaner and your carpets dry 2-3 times faster.

Namco's Fast Dry is loaded with Isopropyl Alcohol "Germ Killer", plus lemon/lime extract. You will note the cleaning power of Isopropyl Alcohol and lemon juice a true disinfectant, and a squeaky clean product. This product is ideal for Truck Mounts for cleaning out Heat Exchangers.

Write or call for a free 1 gal sample, all we ask you do is pay the freight. Your first order of 1 gal of Namco's Magnum Blue and 1 gal of Namco's Fast Dry Carpet Shampoo are absolutely "free…try it!"

1. Fill 5 gallon Bucket with hot or cold water. Put Solution Line (incoming) in bucket. Add 16oz. of Magnum Blue Pre-spray and Traffic Lane Cleaner.

2. Connect 60 ft. Solution Hose to Scooter Machine, by pressing female quick connect all the way back, so that fully connect male to unit. Note: These two connectors must be all the way in for solution pump to run

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3. Spray all carpet areas with the Magnum Blue Clnr. Note: With tough stains such as food, grease, oil, tar or traffic lanes, hold gun barrel 1 or 2 inches off carpet to blast stains away. If you spray enough Magnum Blue mix on carpets you will see most organic stain disappear within two or three minutes.

Remember, Magnum Blue is a very high alkaline product about a pH of 12.5 to 13 so it is one heck of a degreaser and organic stain remover, however this product will not remove red stains or bleach stain, which removal will be covered later on.

Note: keep vacuum hose out of the way while spraying Magnum Blue down. Next, disconnect spray gun and connect solution hose to floor wand, then connect vacuum hoses to both machine and floor wand.

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4. Rinse bucket out and replace with just plain hot water. Note: if you want very hot water, plug in our 1500-Watts Bucket Heater before you start.

You should have real hot water in a short time if you plan your cleaning job right. Add 16 oz. of Namco's Fast Dry Rinse to 5 gallon of hot water for the regular carpet cleaning.

Note: carpets can be cleaned with hot or cold water. You now are cleaning carpets with a low pH of 1.5 to 2 pH on the acid side.

This product is loaded with lemon extract and Isopropyl alcohol so not only does it kill bacterial, it will cause the carpets to dry faster with a pleasant lemon fragrance.

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5. By pressing the control level and holding it down on the forward and reverse motion, not only will you remove the soap in the carpets, the carpet will become squeaky clean. I usually use two forward and two reverse strokes with solution and the same with the control off for drying with the rinse cycle.

6. You now should have a very clean carpet. But if you want the carpets dry faster, use a carpet Blower as you finish each room.

The airflow creates evaporation, so the carpet will dry 3 times faster. Also using Fast Dry on a rinse is loaded with Isopropyl alcohol will cause the carpets to dry twice as fast.

7. Always use Foam Brake Defoamer if there Is a lot of soap in carpets and foam is present in dirty water tank.

8. If the carpets smell dog or cat urine, organic smell, smoke or whatever, finish off by-spraying Liquid Alive Bacteria with the spray gun

after you finish cleaning carpets. Using just 2 gal. of cold water in your bucket, add 16 oz of Liquid Alive, and then using the spray gun spray entire carpet, using more on bad areas.

Note: Do not suck back up, Liquid Alive works only in wet areas, so remember just mist most areas. You will never have a smelly carpet again. You can fog the area also.

9. To close Scooter down:
Spray Scooter down inside and dump in commode or toilet. Release pressure on pump and run vacuums for approximately 1-2 minutes to get all water out of vacuum hoses and dampness out of motors.

10. Wind up hoses and put in bag. The hose bag will fit on the front of the Scooter, just tie string on hose bag around floor wand.

11. The dump valve is high enough to fit over a commode. If you want to work out of the bathroom using your bathtub as a solution tank or you can work out of a kitchen sink in Restaurant area or block a room in a Motel/Hotel area. You can use 100 ft. Hoses with The Scooter Husky or PT5000.

APPLICATIONS & PROCEDURES

1. CLEANING TIPS

- Check the condition of the area to be cleaned. Look for loose carpet, heavily soiled areas, stains or spots and worn areas. Bring these to the attention of the person in charge before performing the cleaning job. Make sure all edges of the carpet are securely tacked in place and all seams are sewn (or glued) tight. This is for your protection.

- Locate an inconspicuous spot on the area to be cleaned. Test the carpet for colorfastness before proceeding. Pour the concentrated cleaning solution on a clean white towel. Place towel on spot and press firmly on top of the towel for approximately 30 seconds. If there is no color transfer, it should be safe to clean. Apply this procedure if different color texture carpet is seen in adjacent rooms or areas to be cleaned.

- Remove the furniture from the areas to be cleaned. Large pieces can be moved to opposite ends of the room from where you start cleaning and replaced when it is completed. After cleaning carpet, place a plastic furniture protector or form block under the furniture legs to prevent moisture from damaging the finish or rusting the metal glides.

- Clean the area with an upright vacuum, REMEMBER: 80% of soil is removed simply by proper vacuuming prior to cleaning. **DO NOT USE THE MACHINE AS A DRY VACUUM**, unless you use the dry vacuum attachment or tank. Heavily soiled carpets or areas of concentrated foot traffic should be treated with recommended **Pre-Spotting** agents. Optional **Pre-Spray Guns** are available for use with the machine. If a spotter is used, follow the directions on the label.

- Identify the types of carpet fibers to be cleaned. Most commercial carpet fibers are synthetic based. **(see page 14 for Allied Commercial Report)**. Best results in cleaning would be obtained if hot water is used to clean these types of fibers. On the other hand, hot water would shrink natural fiber carpeting, like wool and cotton in particular. Exercise caution when cleaning natural fibers. Do a colorfastness test with cool water and apply a more diluted cleaning solution for the cleaning process.

- Plan your cleaning route. Start cleaning at the farthest point away from where you plugged in the machine and work toward the outlet so that the cord will not get in the way.

- A condition called browning or **"wicking-up"** (discoloration from the carpet's jute backing that appears on the pile tips) is a rare condition that shows up on light colored carpets a day after cleaning. Questions the person in charge so as to find out the age of the carpet. You will find that older carpets are more susceptible to browning. This condition can be corrected by spraying a mixture of Brown Out & water. This spray can also be used for pet stains, which sometime cause browning of carpets. Immediately scrub with a brush or terry towel.

- **NAMCO Carpet Blower/Dryers & Dehumidifiers** are available for quick drying of carpets.

- To speed up the drying time of carpets that have just been cleaned, the air-mover (3-speed/2500 CFM) variable speed may be placed on the carpet during the cleaning process. Avoid walking on the carpet until it is dry. This blower can also be used for flooded carpets. NOTE; Wet-VAC all excess water out of the carpet first with the Scooter and then pull up one corner of the carpet and insert the carpet dryer under the carpet. This will move air up and under carpet and possibly dry the padding without removal.

2. TO CLEAN HARD FLOOR SURFACES

The use of our optional **Squeegee Wand Assembly** gives the extractor the versatility of being in cleaning and sanitizing hard floor surfaces. This **Squeegee** wand has a tremendous advantage over the use of a string mop in that you can use it to rinse dirt, grease, stubborn spots, food, etc… and all the dirty solution is vacuumed up and rinsed with clean water at the same time leaving the floor practically dry. This **Squeegee** wand is designed to clean most commercial kitchen floors, tile floors, and linoleum floors without the need or use of a mop.

3. TO USE THE SQUEEGEE WAND

1. Sweep and remove all debris from surface being cleaned.
2. Spray with recommended tool the proper floor cleaning solution.
3. Connect squeegee rinse wand in the same manner as regular carpet floor wand and thoroughly rinse and vacuum up entire surface.

4. TO CLEAN UPHOLSTERY

Cleaning upholstery with success requires a good knowledge of the type of fabric to be worked on. Look for the cleaning instructions label sewn on the underside of the furniture for the recommended method of cleaning the fabric. If it calls for dry-cleaning, DO NOT attempt to clean with the wet extraction method. Otherwise, damage to the fabric could occur. The extraction method is effective on most synthetic, wool and cotton fabrics.

Before proceeding, always test the fabric to be worked on for colorfastness. Pour a small amount of cleaning solution on to a white terry towel and apply to an inconspicuous spot. Apply pressure for approximately 30 seconds and then check towel for any color transfer. If any color comes off, or transfers DO NOT continue.

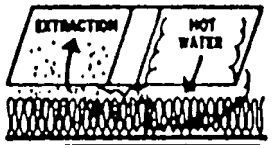
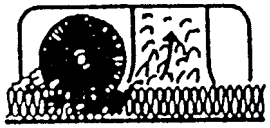
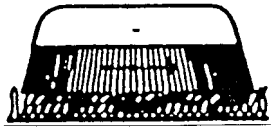
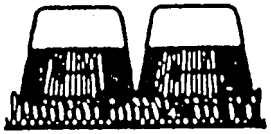
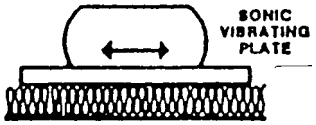
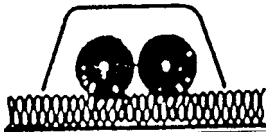
1. Attach vacuum hose end to upholstery tool and solution connecting coupler to the tool; make sure the couplers have been connected properly.

2. Turn on the vacuum and pump switches.

3. Pull the upholstery tool towards you while squeezing the solution lever. NOTE: Avoid over wetting. Make overlapping passes to prevent streaking. Go over the cleaned area without depressing the lever, (vacuum only) and gauge the amount of moisture thru the view tube for dryness. On heavily soiled areas like armrests, treat with a **Pre-Spray.**

ALLIED CHEMICAL ***IS ONE OFTHE WORLD'S LARGEST MANUFACTURERS OF SYNTHETIC FIBERS.***

BELOW IS A COMPARISON OF CARPET CLEANING METHODS AVAILABLE ALONG WITH THE ATTRIBUTERS OF EACH METHOD.

Steam-Extraction The steam-extraction system is based on injection of a jet of hot water containing detergents at a prescribed rate and subsequent extraction by a vacuum system.		1. Does excellent cleaning. 2. Does not cause pile distortion or flaring. 3. Built-in vacuum removes soil. 4. There is no residue of shampoo to collect more dirt. 5. Excellent pile restoration.
Cylindrical Brush-Dry Foam This system has a cylindrical brush which scrubs and picks up the foam generated by the machine in one pass.		1. Causes severe pile distortion and flaring of tufts. 2. Does have built in vacuum, which removes shampoo and dirt.
Rotary Brush-Wet Shampoo A rotary brush cleaner using wet shampoo. A complete line of accessories including vacuum and drying equipment is also employed.		1. Causes severe pile distortion and flaring of tufts. 2. Does uniform cleaning. 3. Does not remove shampoo and soil.
Small Rotary Brushes-Wet Shampoo This is also a rotary brush cleaner, but employs two brushes instead of one and is somewhat smaller than the rotary brush-wet shampoo machine.		1. Causes severe pile distortion and flaring. 2. Does very little cleaning. 3. Does not remove shampoo or soil.
Sonic Cleaning Sonic cleaner consists of a vibrating plate, which gives a sonic cleaning action, causing activation of the foam.		1. Does not cause pile distortion or flaring. 2. Incurs less cleaning than above methods. 3. Has no method for removal of shampoo and soil.
Cylindrical Brush-Dry Compound This is a cylindrical brush cleaner with two rotating brushes. It is a small machine designed for home use and uses a dry cleaning compound.		1. Causes excessive pile distortion and flaring. 2. Incurs less cleaning than above methods.

An inexperienced operator, especially a beginner, should learn the art of mixing colors. If time is spent learning about colors and their relation to each other, some of the problems will be better understood. A color chart is a great help, especially as a reference for you and your customer.

1. PRIMARY COLORS
There are three primary colors. These colors cannot be obtained by the mixing of other colors. They are noted at the points of the main triangle on the following page. (the solid lines). The points of the triangle shown with the broken lines are the secondary colors. Mixing two primary colors in equal proportions forms these. These colors are Orange, Green and Purple. Intermediate colors are found on the lines of the main triangle between the primary colors. The mixing of two primary colors in unequal proportions produces these. They can be made to fit in any place along the line. Since two primary make up a secondary color, the intermediate colors are also made from a primary and a secondary. The tertiary colors are found in the areas between the primary colors, or the secondary colors. They are a composite of all three primary colors of unequal quantity. When three primary colors are mixed in equal proportion, the resulting color is gray.

Brown is a tertiary color. It is usually composed as follows:
RED 75%
BLUE 15%
YELLOW 10%

By understanding these combinations of colors, we will be able to increase our ability to achieve a desired color in the field.

EXAMPLE:

If we are working on a gold carpet and trying to achieve a dark brown, and we are using **NAMCO'S COLOR Dark Brown**, but it is not coming out dark enough, what can we do? We know by adding Forest Green or Dark Green, we can increase the proportion of Blue and Yellow and thereby increase the intensity of our Dark Brown.

However, there is a limit to the amount of green we can add. By adding too much green the color will turn gray. By understanding colors and their reaction to each other, you will be able to satisfy many more customers. Multi-colored carpets meeting the dye ability test and the test patch can be dyed very successfully.

The result is a multi-colored shag of three shades of blue ranging from a light to a royal; you would in most cases dye the carpet with Royal Blue. The end result would be a darkening of all the shades, but a very acceptable color change. Red carpets can usually only be dyed a darker red or burgandy. The depth of color prohibits dyeing a totally different color. Very light red carpets can be dyed rust.

2. APPLICATION

- All carpets must be cleaned before applying dye. Mix **One Shot** (2 oz. per gallon of water) into tank. For heavily soiled carpet, mix **One Shot** in with your cleaning solution. Cleaning liquid must be a low pH cleaner (from 7 to 9), or it could cause color changes.

- Watch for trouble areas while cleaning carpet such as foaming areas or bleach. Pre-treat such areas with proper chemicals. Foaming areas must be treated with **Fome Brak.**

- Mix powder dye in tank using hot water, 2-4 oz./gal. **Dye Penetrant**, 2-tablespoon/5 gal. **First Step** and mix thoroughly to prevent residue from settling in the bottom of the tank. Do not over mix or all the dye will not dissolve resulting in splotchy dye jobs.

- Apply dye in a small area in closet to determine color. Some colors go down light and darken in about 5 to 10 minutes, so let the dye stand before adding more dye. If color is OK then apply dye to rest of carpet. Start applying dye by cutting in around the walls, clean any mishaps with bleach solution being careful not to get any on the carpet or apply **Liquid Alive Guard** around the baseboards before dyeing. Extract dye from carpet; finish clean up of floors, sinks, toilets, etc…

3. DYEING TIPS

- Before cleaning and preparing carpet, you can mix 1 cup full of Fabric Softener with your solution. This helps in penetration of the dye; it also reduces odors and static electricity. DO NOT mix with dye solution.

- Put your dye mix in a gallon jug, fill with warm water and shake well. Pour dye solution in tank and stir. This helps to eliminate residue.

- Water hardness varies from area to area. Water hardness can aid in poor penetration by using 1 tablespoon of **Versene** per 5 gallons of water. You eliminate the iron and soften the water. **Versene** may also be used when cleaning carpet to boost cleaning power.

- Gold dye will tone the red out of your dye without darkening the color. Green dye will tone the red out and will darken the color. Rust dye will tone blues out of grays, but gray is a borderline color. To much rust will turn it to a green shade. Always carry these three colors with you.

- When spot dyeing bleach spots, if the bleach spot is white, then apply gold to the spot before applying any other color. That keeps brown from turning red, green from turning blue and so on.

- When extracting the dye, if you give it a light tint, it will help in blending in light and dark areas.

4. TROUBLE SHOOTING

Dye did not penetrate completely.	1. Carpet is to thick, in which case, apply dye in small areas at a time, and then rake each area. 2. Reclean carpet using 1 tablespoon of **Namco's Versene** then reapply dye using half the amount of dye per 5 gallons, not to darken the color. 3. Use more penetrant to slow strike.
Brown Dye to Red or Turned Purple.	1. The pH could be too high, casing the change. Reclean carpet with **Namco's First Step**. 2. The pH is down and it is still purple. By color cleaning with a light Gold solution, you can kill the Red without darkening the color. If you would like to darken the color, use a light Green solution. The amount of Gold or Green may vary. Always try in a closet first.
Gray Dye to Blue.	1. By adding a touch of Rust dye to your solution will help kill the blue.
Carpet changed color after cleaning.	1. Some over the counter Sevin Dust is cut with Boric Acid, which reacts with the backing of the carpet. Not much can be done in such cases except cleaning with cold water, then dye carpet very dark.
Traffic areas lighter than the rest of the carpet.	1. Apply more dye to traffic areas and let stand or about 20 minutes. Then extract. 2. If still too light (if carpet was dyed Dark Brown) you would tint the dark areas with Gold or Tan to give it a lighter tone.
Dye turns Red or Green around edges after dyed.	1. Spray around edges with Gold or Red. If no change, then clean around edges with **Namco's First Step**, then reapply the dye.

4. TROUBLE SHOOTING

Carpet not accepting the dye in areas.	1. Carpet may have been treated with a fire retardant; only a high pH cleaner can remove it. You must re-prep carpet after using cleaner. 2. Animal urine stains that were not treated or were not treated properly. Retreat the stains. 3. Carpet may have been cleaned with a light bleach solution nothing can be done. 4. Chlorine from bathing suits or towels can cause such problems. Treat with **Bleach Neutralizer**. **NOTE**: In each case areas must be treated, then spot dyed to blend in. They can be treated with **Bleach Neutralizer** if there is not very many areas.
Dye tracking off after dried.	1. Too much dye was applied. Clean carpet with cold water and **First Step** to remove excess dye.

Everyone knows what **"colors"** are. But just what causes colors? Why does dyeing always result in a darker color? Why do the same colors look different from day to day, and from place to place, if they are taken from one place to another? This section is offered to answer these questions and more, in language that is easy to understand.

Everyone has seen rainbows, and most people have seen a prism. These two items have something in common: The division of "light" into colors. But where do the colors come from? Most people do not normally think of light as red, green, yellow, or violet. But in fact the everyday "light" we work with is all of these and more. It literally contains all the colors of the rainbow. So why cannot we see these colors? We do! We see them constantly. We see the red of apples, sunsets, and even blood. We see the yellow of the sun, of butter, and of honey. We see the blue of ink, of the sky, and of the ocean. We see all of these colors and more in paint and in dye. So why do we see them on "surfaces", but not in the light as it crosses the room? What we see as a "color" is a result of all the other colors present in the light being absorbed, while the color we see is reflected back to us. It is that simple.

Color is the result of light being absorbed and reflected selectively. All of the colors of light added together in equal strength result in "white". But why cannot we mix the colors and get "white" ourselves? We can, if we can mix the light, but what we are concerned with here is "pigments" of one kind or another.

"Pigments" are selective light absorber/reflectors. If we put a pigment that reflects "blue" but absorbs other colors onto a surface, we see "blue" If we put a pigment on the blue that absorbs blue, less light is reflected and a dark color results. It may be "black", if we have the proportions right. But it will look darker if more pigments are added.

But let's take the same blue from sunlight to the incandescent light given off by a light bulb. The blue is not as bright as before. In fact, it may even appear sort of "greenish" by comparison to the way it looked in sunlight. Why? Sunlight is a "whiter" light that contains a more equal balance of colors. The light from the light bulb contains more yellow when compared to the sunlight. As a result, there is more yellow present to be reflected. The pigment of the "blue" has not changed, so it absorbs the same amount of yellow as before. But since more yellow is present in the light, more is reflected, resulting in a "greener" blue, since blue and yellow, together, form green.

A very important lesson to be learned from this is that pigments look different in different kinds of light. So keep this fact in mind, and always compare and examine colors in the "light environment" that they will be placed within. This is especially true of residential dye jobs, since exact color can be so critical where they are concerned.

So, in summary, colors are the result of pigments' influence on light. Pigments absorb light, and what remains, or what we see as reflected light, we call "color".

All "colors of light" being absorbed equally and completely results in "black". All colors being reflected equally results in "white", if the light is a balance of the hues of the different colors.

When we dye carpet, we add pigments that blend with the original pigments, and in the process reduce the amount of light reflected back to us. Therefore, dyeing always results in a darker color.

Before proceeding any further, it is necessary to know more about how "colors" influence each other. This is due to the fact that dye colors are basically permanent once applied, and very obvious in their appearance.

THIS IS THE HEART OF DYING! YOUR SUCCESS IN DYEING RESTS UPON YOUR KNOWLEDGE OF COLORS! STUDY CAREFULLY!!!

There are only three "true" colors. They are called primary colors, and are the building blocks of all other colors. These colors are:

❶ **YELLOW**
❷ **RED**
❸ **BLUE**

But what about the other familiar colors we see every day? They are a result of blending two or more of the pigments that reflect these primary colors.

A color that appears to be the result of two primary colors is called a "Secondary" color. There are three basic secondary colors. They are:

GREEN: BLUE AND YELLOW

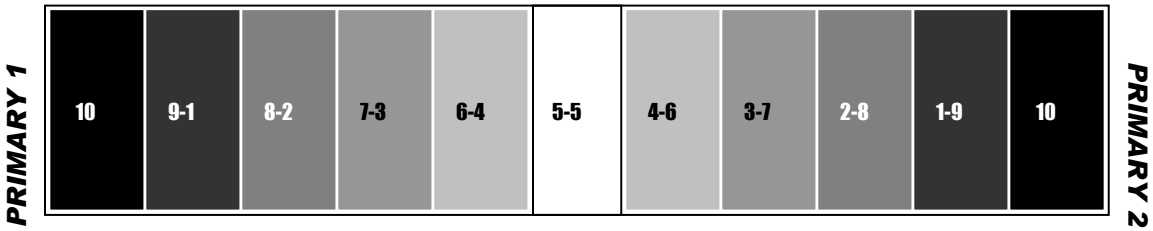
ORANGE: RED AND YELLOW

VIOLET: RED AND BLUE

Furthermore, these secondary colors can be adjusted to appear as variations of themselves. Adjusting is accomplished by varying the ratio of one of the primary component colors to another. For instance, Green can be made "bluer" by adding more Blue, or Yellowier" by adding more Yellow. (Remember the names of the crayons like "Blue-Green or "Red-Orange"?).

By adjusting the ratio of the two primary colors that make up a secondary color, the color can be made to appear lighter or darker. For instance, when adding Blue to Green, the Green will appear darker at first. But, as you proceed to increase the Blue's content (or ratio) more, the Green begins to take on the appearance of a "Blue-Green". The results it that the new color is seen as what it is: Mostly one primary color in this case, Blue.

The diagram below will help to illustrate this:

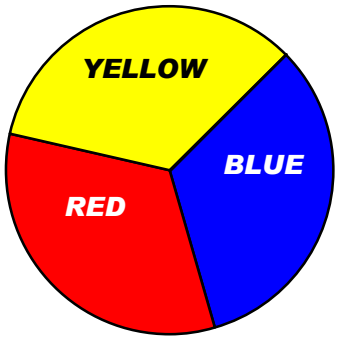


This diagram represents the blending of a mixture that is composed of ten parts of dye to a certain volume of water. For the sake of simplicity, let's say that "Primary 1" is Yellow and "Primary 2" is Red. 10 Yellow would be pure Yellow, and 10 Red would be pure red. 9-1 would represent 9 parts of "Primary 1" or Yellow, in this case, and 1 part of "Primary 2" Red. 9-1 would represent 9 parts of would represent the reverse: 1 part Yellow and 9 parts Red. 5-5 is equal parts of each, and in this case would be a color everyone would recognize as "Orange". To a point, in either direction, the Orange will "lighten" or "darken". But past that point, the Yellow or Red will become so apparent that it will "dominate" the other.

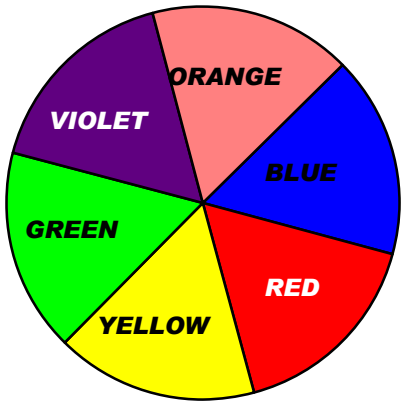
So how do you darken a secondary color? Think about it. Let's use Orange as the example some more. What would happen if you add a small amount of Blue? The Blue would make the Orange "be" less Red if it was a Red-Orange. It would also make the Orange be less Yellow, if it was a Yellow-Orange.

This illustrates a principle in color blending which is often called "flattening or dulling". "Flattening" is the process of adding the third primary color to a secondary color in order to adjust the secondary color. This adjustment can be in order to darken the secondary color, or to make the dominant primary color less noticeable (sometimes this process of making a particular primary color less apparent is called, "numbing it out").

At this point in our explanation, it will be useful to become familiar with a tool called a "color wheel". A color wheel is basically a diagram that illustrates the relationship of the primary colors and secondary colors to each other.



In the above diagram, the three primary colors occupy equal parts of the circle. They have the number "1", because "1" stands for "primary" in the case. This diagram also represents that the three colors are of equal "tinctoral" strength. Tinctoral strength is a way of expressing the relative concentration of a dye color. We will call this wheel the **"primary color wheel"**. If you make the secondary colors from equal portions of the three primary colors, of equal tinctoral strength, you get a color relationship that can be represented as this:



We will call the above wheel the
"SECONDARY COLOR WHEEL"

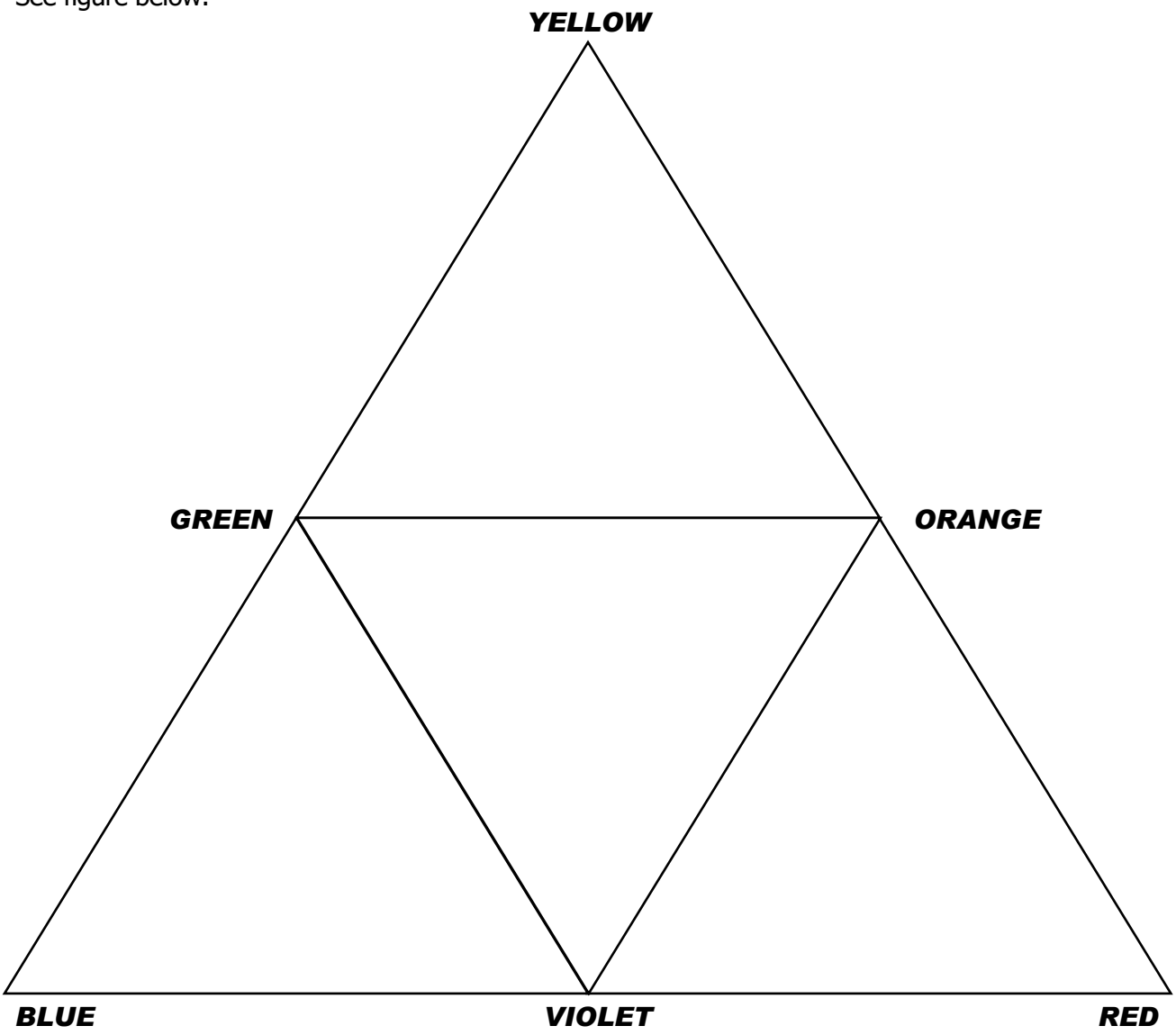
The color wheel is an extremely useful tool for learning the relationship of colors to each other. It is also very useful for determining what colors to mix when re-dyeing carpet. When looking at the Secondary Wheel, you will notice that the secondary colors have been placed between the primary colors that they are made of.

Suppose you want to take Yellow to Violet. You find Violet on the wheel and you see that Red and Blue make Violet. Yellow is not included. So you know that Yellow won't go to Violet (this is not unconditionally so, but usually so, as we will see later).

So, the Secondary Color Wheel can tell you what secondary colors are made of, and, in general, what can and cannot be done with secondary colors.

An adaptation of the Secondary Color Wheel is the Color Triangle. The triangle does what the Secondary Color Wheel does, and more. The triangle is also a useful tool in determining how to blend "tertiary" colors as well as secondary ones (Tertiary colors are colors that are made from all three primaries). It does this by showing the complimentary relationship of colors.

See figure below:



As you can see, the triangle shows that colors make up the secondary colors by placing the complimentary colors for each target colors located in between. In this context, "complimentary colors" are ingredient colors that are necessary to form a "target color".

For instance, Orange is located between its complimentary colors, Red and Yellow, Forest Green is between Green and Orange, and Olive Drab is between Forest Green and Gun Metal Blue. The chart, as shown, represents the results of 50% / 50% blends of the various complimentary colors.

Making primary colors darker is a relatively simple task, and is the first step in learning how to blend colors for desired results. Suppose you want to darken Yellow. You can do it three basic ways:

1. You can add a very small amount of Blue, and it will go darker. But if too much is added, the Yellow will begin to go Green.

2. Or you could add a small amount of red. This too would cause the Yellow to darken. Too much Red will cause the Yellow to go towards on Orange.

3. And you could add Violet. Violet is made of Blue and Red. Adding violet to Yellow will also darken the yellow, but in a different way. Violet will tend to dull Yellow. This is because a true "Violet" is 50% / 50% Red and Blue, and Yellow, Red and Blue cancel each other out, or "dull" each other.

To alter the Yellow without destroying it, we want to change it only slightly. (Adding too much Violet will cause the Yellow to go to a dull Purple). This would be a simple task in a laboratory with accurate means of measuring the relative strength and quantity of colors. But without such means at our disposal, this is not so cut and dry. There is no simple, effective way to measure the color(s) you see on the floor. In other words, you must guess.

First determine how you want to darken the Yellow. Then add a very small amount of the appropriate complimentary color. Keep in mind that Yellow is the lightest of the three primary colors, and is therefore the most easily dominated. If you are experimenting or learning, figure what, in your opinion, is the appropriate amount to equal a 10% change of color (10% is the smallest amount that humans can recognize). Then cut that amount back by half to give yourself a safety margin. Remember: You can always add more dye if necessary, but you cannot remove dye nearly as easily.

The principles described above are true for all primaries. To darken a primary color:

1. Add one of the other primaries.
2. Or add both of the other primaries.
3. Keep the addition of the color in increments of 10% or below 10%.
4. Use less dye than you think is necessary (until you get a "feel" for mixing), since you can always add more.

Generally, the way to darken a Brown is to add Blue to it. In doing this, you are continuing to dull the Orange and deepen the color.

Blacks are similar to browns in that they are composed of all three primaries. They are different in that they are a much closer balance of the three. It is a common misconception that Black is an equal balance of them. In fact, however, there are several shades of Black, depending upon which of the three component primary colors is dominant. For instance, there are Yellow-Blacks, Red-Blacks, and Blue-Blacks.

Greys are simply weak forms of Black. But in the Greys, the proportion of the three primaries is much more apparent. This is because Greys reflect much more light than blacks.

In the Triangle, complimentary relationships are indicated by dotted lines. For instance, the complimentary color to Orange is Blue. Adding Blue to Orange shades Orange, and the process flattens it. As it is dulled (or flattened), Orange becomes "Brown". As the level of Blue is increased, the Brown becomes a color we recognize as "Black", assuming that the Orange is a 50% / 50% Red/Yellow mixture.

DYE COLORS

On the following pages is a complete listing of our dye colors. Each color is listed in a way that is easy to read. Under the name of each color is a code. The code represents the approximate ratio of primary colors to each other. Yellow is listed first, then Red, and finally Blue. The number by each primary color indicates the number of measures per unit of volume that it occupies.

Following each name and code is a brief description of the color. The second paragraph covers a brief description of the general uses and applications of the color. The third paragraph covers the most common uses of the color within our system. Any cautions necessary are listed last, followed by their solutions.

1. OUR COLOR: YELLOW

RATIO:
20 - PARTS YELLOW,
0 - PARTS RED,
0 - PARTS BLUE

(SEE ALSO GOLD)

Yellow is one of the three primary colors. The other two colors, Red and Blue, make Violet. Therefore, Yellow is the complimentary color to Violet in order to get a Brown, Grey, or Black.

Yellow is rarely used by itself in Spray-Dyeing, but is used often in the Color Cleaning version of Color Restoration.

In Spray-Dyeing, Yellow is most often used to lighten dye solutions that are of the Brown family. Yellow is the least dominant of the three primary colors in terms of darkness, so it may take more Yellow to lighten a dye solution than it would seem at first (sometimes, lightening a color can be better achieved by diluting it with water, or by a combination of diluting it with water, then adding Yellow).

CAUTION: Since Yellow is a "delicate" color; it may take a lot of it to achieve the desired brightening of your dye solution.

SOLUTION TO CAUTION: As above, try diluting the color, or dilute then add Yellow.

DYE COLORS

2. OUR COLOR: RED

RATIO:

0 - PARTS YELLOW

20 - PARTS RED

1 - PART BLUE

Red is one of the three primary colors. The other two colors, Blue and Yellow, make Green. Therefore, Red is the complimentary color to Green to get a Brown, Grey or Black. Red is used most often to balance out drab shades of browns and greens, and to give move vibrancy. Within our system, Red is added most often to Brown or Dark Brown in order to create a good, rich Brown on the floor. When used in this manner, a little Red goes a long way, which means that you use less dye. Think of Red as you would a spice in cooking. Pick the right base color, and adjust it with Red.

CAUTION: Red is very dominant. It is the most difficult color to "kill", or neutralize. In many cases, a new color resulting from attempts to hide Red is extremely dark, such as Dark Brown, Grey, or Black.

SOLUTION TO CAUTION: Try to incorporate Red colors into the new colors to keep from going too dark. The new color would have Red overtones, such as rust, Mauve, Burgundy, Dark Rust, and Chestnut.

3. OUR COLOR: BLUE

RATIO:

0 - PARTS YELLOW

1 - PART RED,

30 - PARTS BLUE

(SEE ALSO: DARK BLUE)

Blue is one of the three primary colors. The other two colors, Red and Yellow, make Orange. Therefore Blue is the complimentary color to Orange in order to get a Brown, Grey or Black. Blue is used most often to darken shades of Brown and green. Within our system, Blue is added most often to Brown, Dark Rust, Rust and Tan in order to darken them, or to flatten Red overtones. When used in this way, a little Blue goes a long way, which means that you use a lot less dye. Think of Blue as you would a cooking spice. Pick the right base color, and adjust it with Blue. Another use of Blue is to "numb-out" red stains in carpet that show through your dye job. To do this, mix a very weak solution of Blue (¼ tsp. or less per quart) in a quart trigger sprayer and mist the area lightly.

CAUTION: Blue is a very dominant color. Darker shades of Blue require you to take the carpet darker than many people like in order to hide it.

SOLUTION TO CAUTION: Try to incorporate the darker shades of Blue into a new color. Some of the easiest colors would be: Dark Brown, Medium to Dark Green, Teal Blue, Grey and Charcoal Grey.

DYE COLORS

4. OUR COLOR: DARK BLUE

RATIO:
1 - PART YELLOW,
1 - PART RED,
8 - PARTS BLUE
(SEE ALSO: BLUE)

Dark Blue I a variation of Blue. As such, it can be thought of as having many of the same characteristics of Blue, because Dark Blue contains small portions of Yellow and Red, it will have a slightly different effect than Blue when used for mixing. For instance, Dark Blue will cause a noticeable difference from Blue when applied to Orange. This is due to the fact that as you add Dark Blue, you are adding Blue, Red and Yellow. Red and Yellow make Orange. So in effect, you are adding Blue and Orange, to Orange. Dark Blue has more of a flattening effect on the colors its added to than Blue does, because it contains Red and Yellow.

Within our system, Dark Blue is most often used to produce a flat Blue (one that is not too bright), such as teal Blue or a flat color that has Blue as a dominant color (Forest Green, Moss Green, Steel Grey, etc…), or added to Browns.

CAUTIONS & SOLUTIONS: See color blue.

5. OUR COLOR: GREEN

RATIO:
8 - PARTS YELLOW
0 - PART RED
3 - PARTS BLUE

Green is made of the two primaries, Yellow and Blue. Green is therefore the complimentary color to Red in order to get a brown, Grey, or Black. Green is well suited for helping to take shades of Mauve and Pink to Brown, and for enhancing Greens. Green is most often used as a color restoration dye for Green Carpet.

6. OUR COLOR: BURGUNDY

RATIO:
1 - PART YELLOW
8 - PARTS RED
1 - PART BLUE

If Burgundy is too Red, add a small amount of Blue.

DYE COLORS

7. OUR COLOR: ORANGE

RATIO:
5 - PARTS YELLOW
5 - PARTS RED
0 - PART BLUE

Orange is a mixture of Red and Yellow. Orange is therefore the complimentary color to Blue in order to get a Brown, Grey or Black. Orange is used most often to balance out light to Medium Blue in order to go to a Brown or Rust, although Rust alone or Rust and Red may work.

Within our system, Orange is used most often as described in paragraph two above, as well as being added to a dye mix with a Brown or rust in order to do a Light Blue or Light Green to Brown color change. It is also used to brighten Red, since it has no Blue.

CAUTION: Orange contains enough Red to possess many of the same qualities of Red.
SOLUTION TO CAUTION: Use small amounts of Orange. See solutions to Cautions offered under Red.

8. OUR COLOR: FOREST GREEN

RATIO:
4 - PARTS YELLOW
1 - PART RED
5 - PARTS BLUE

Forest Green is composed from the three primary colors, Yellow, Red and Blue. Ratio is 1 ¼ as much Blue as Yellow, and ¼ as much Red as Yellow. Forest Green is used most often to restore color to Medium to Dark Greens.

9. OUR COLOR: TAN

RATIO:
5 - PARTS YELLOW
4 - PARTS RED
1 - PART BLUE

Tan is made of the three primary colors, Red, Yellow, and Blue, the approximate compositions slightly more yellow than red with about one-fourth as much as Blue. Tan is used in much the same way as Dark Rust due to their similar composition, but since Tan has less Blue and Red than Dark Rust, and therefore more Yellow, it is not as dark or "rich" as Dark Rust. Therefore Tan is more appropriate for lighter colors. Within our system, Tan is used most often as a base color that is "adjusted" by the addition of other colors, such as the primaries and by Dark Brown.

DYE COLORS

10. OUR COLOR: GOLD

RATIO:

20 - PARTS YELLOW
2 - PARTS RED
1 - PART BLUE

Gold, because it is mostly Yellow, can be used almost anywhere that Yellow can. But because Gold contains small portion of Red and Blue (Violet the complementary color) it is darker than yellow (not as bright). Within our system, Gold is used most often to add both brightness and depth to Browns and Rusts. **CAUTIONS & SOLUTIONS:** See color yellow.

11. OUR COLOR: RUST

RATIO:

8 - PARTS YELLOW
12 - PARTS RED
1 - PART BLUE

Rust is a mixture of the three primary colors, Yellow, Red, and Blue. Red is the dominant color with Yellow next. Blue is by far the least influential of the three colors in Rust. You can think of Rust as basically a slightly reddish Orange that is flattened by Blue. Rust is a good color for taking Light Green and Light Blue to Brown. It is also used for taking Yellow to Rust, as well as taking Orange to Burnt Orange. Within our system, Rust is mot often used for enhancing Oranges, Rusts, and light to medium Browns in order to make them appear richer..

12. OUR COLOR: DARK RUST

RATIO:

6 - PARTS YELLOW
6 - PARTS RED
2 - PARTS BLUE

Dark Rust is a mixture of the three primary colors, basically equal parts of Yellow and Red, with about a third as much Blue as either of the other two. Think of Dark Rust as Orange with enough Blue added to give it a Bronze Hue. Dark Rust is a very good color for taking light Blue, light Grey or light to medium Green to Brown. It is also useful for taking Orange to Burnt Orange and for incorporating Kool-Aid stains and plant stains into brown and rust carpets. In addition, Dark Rust is useful for enhancing Rust Brown and Tan carpets.

Within our system, Dark Rust is most often used as a bases color and adjusted with either Brown, Rust, or Blue for specific applications, as well as for hiding reddish stains in Tan, Light Brown, Camel, etc. colored carpets.

DYE COLORS

1. OUR COLOR: BROWN

RATIO:
5 - PARTS YELLOW
4 - PARTS RED
2 - PARTS BLUE

Brown is a mixture of the three primary colors, Yellow, Red, and Blue. Basic composition is slightly more Yellow than Red and about half as much Blue as Red. Brown appears to be a pure Brown with no Red, Yellow or Blue highlights. Brown is used most often as a base color that is shaded with Red, Yellow, Blue, Rust or Dark Rust for specific applications. Brown is a good color for taking light Tan to Brown, Rust to Dark Rust, and Dark Rust to Dark Brown.

CAUTIONS: Avoid applying Brown to Green or Blue. The resulting colors will appear murky.

SOLUTIONS TO CAUTIONS: Shade Brown with Red for green carpets, or use Rust or Dark Rust. Shade Brown with Orange or Rust for darker blue carpets, or use Rust instead of Brown.

14. OUR COLOR: DARK BROWN

RATIO:
3 - PARTS YELLOW
6 - PARTS RED
2 - PARTS BLUE

Dark Brown is made up of the three primary colors, Red, Blue, and Yellow. Composition is 50% more Yellow than Blue, and twice as much Red as Yellow.

Dark Brown is well suited for taking Orange to Brown, Rust to Brown, Dark Rust to Dark Brown, Brown to Dark Brown, and Medium blue to Dark Brown.

Within our system, Red, Rust, Orange, Brown, or Dark Rust most often uses Dark Brown as a base color that is shaded.

CAUTIONS: Avoid applying Dark Brown to tan, Yellow, or light pastel colors. Dark Brown's violet cast will result in flatness of appearance.

SOLUTIONS TO CAUTIONS: For the colors listed under "caution", Shade Dark Brown with Red, or use another color entirely.

ON COLOR CHANGES

So far, we have covered Color Theory, from what causes **"colors"** in the first place, to the building blocks of color, the primaries, to the results of various combinations of primaries. Now let's look at the applications of carpet dye to previously dyed carpet fibers.

Although color theory, as we have discussed it so far, applies to dyeing carpet, our understanding of the blending of colors must now take a different viewpoint. This is because blending colors in a container, and the blending of colors that results from re-dyeing, are quite different.

In blending our dye with the original dye on the floor, we have the opposite situation. The dye on the floor has stuck to the fibers and will not release into our dye. As results, our dye becomes a "lens", of sorts, that the original dye is viewed through. Since this is so, the results are not quite the same as they would be if true blending could take place. The topcoat of new dye is more apparent to us than the undercoat original color. A simplified explanation for this is that the light must first pass through the topcoat to get to the original color. Therefore the topcoat will reduce the light going to, and consequently, coming from, the original color. For this reason, it is usually necessary to add the "target color". If you want Brown, use Brown, etc., shaded with the appropriate complimentary color(s) to do the job. Let's look at this more closely.

Let's say that you have an Orange carpet and you want to take it to Brown. Your knowledge of color theory tells you to use Blue, since Blue and Orange are complimentary colors for Brown (you may need to add some Yellow too, If the Orange is strong in Red, since Red is do hard to "kill" [neutralize]). But if you shoot pure Blue (or Blue-Green) on top of the Orange, you get a murky purplish-Brown color. If you put Brown by itself on the Orange, you get Rust or maybe even a Burnt Orange, if the Orange is strong enough. So what is the answer? The target color (in this case, Brown) shaded with the appropriate complimentary color(s)! (in this case, Blue or Blue and Yellow).

1. COLOR CHANGES: AN OVERVIEW

Keep in mind that color changes require more time and dye than color-to-color dyeing, and are therefore less profitable. So, when possible avoid color changes. When doing a color change, the easiest way is to stay within the same "family" when possible; for instance, changing the carpet from a Tan to a Brown. Both are in the "brown" family.

The darker the carpet, the harder it is to change its color. Truly dark colors are almost impossible to change. But if a color is light enough you may actually be able to kill it entirely. For instance, you may be able to take a Light Grey (which contains Red, Blue, and Yellow) to Royal Blue or Brown. In an instance such s this, the color being killed must be very light in the pastels. Avoid this whenever you can, but it is good to know, nonetheless.

It is very important to keep in mind that words are very limited with regards to describing colors. For instance, one person may say a color is "Rust" while another will say that it is "Reddish-Brown". Be sure that your terminology is in line with that used on the chart before trusting what you read.

ON COLOR CHANGES

2. COLOR CHANGES

When dyeing carpet, you need to keep in mind the colors you are working with. You always add colors when dyeing. So you have to learn to think in terms of what is missing from the desired color when you are working.

For example:

1. ***BEIGE, YELLOW OR GOLD TO BROWN***
   Brown's dominant color is blue, with red the next. The dominant color in Beige is Yellow. So you need to apply a color that is strong in Red and Blue, with very little visible Yellow (adding only Purple would not result in a color that is dark enough). Our Dark Rust is just such a color.

   While having red and blue as dominant colors of about equal visible strength, it contains enough Yellow to maintain the balance and keep it in the Brown end of the spectrum.

2. ***GREEN TO BROWN***
   Do not attempt to color change very dark green carpets, as the color is probably too dominant. The dominant color in most shades of Green is Blue. The ingredient needed to make Brown is Red. However, just adding the Red will not automatically turn the Green to Brown, although it definitely helps. Our Rust dye is very strong in Red, and will do the job in most cases. Depending on the darkness of the Green, and how well the carpet takes dye, a second coat of dye may be necessary to keep any Green from bleeding back through. If this is the case, you can simply re-apply the same mix, or a stronger mix.

   DO NOT extract the first coat before applying the second, but work it in well with a Grandi-Groom. If a darker shade is desired, you could use Dark Rust for the second coat, as it, too, is strong in Red. If you want a shade that tends toward a Burnt-Orange, simply add Orange or Red dye to either the Rust or the Dark Rust to desired strength.

   The lighter the Green, the less Red is needed to achieve a Brown. On very light green, you could simply start with Dark Rust dye.

   If Rust or Dark Rust is not strong enough, use a strong blend of Red and Dark Brown. You can mix these two colors together to make either a super-strong Chestnut or Dark Rust, depending on the ratio of Red to Brown.

3. ***ORANGE TO BROWN***
   It is sometimes very difficult to achieve a true Brown from Orange, as Orange is so strong in Red. How well it changes usually depends upon how well the carpet accepts the dye and how strong the Red in the Orange is.

4. ***ORANGE TO BROWN***

It is sometimes very difficult to achieve a true Brown from Orange, as Orange is so strong in Red. How well it changes usually depends upon how well the carpet accepts the dye and how strong the Red in the Orange is.

The missing ingredient here is Blue, but again, simply using Blue dye will not achieve the desired result. Our Dark Brown is very strong in Blue, and could be used. The Dark Rust also gives good results, although the resulting color is more Rust than Brown. Here again, a second coat (without extracting the first coat) using the same mix will make the carpet a little darker if the first color is not satisfactory.

NOTE: When applying a second coat to any dye, you could use your steam-cleaning wand instead of the dye gun, if all you need is a light coat of color to even it out. Since the carpet has already been dyed, you will only be tinting and the possibility of streaking will be minimized. This can save time, as it allows you to extract while you are applying the dye, and also keeps you from handling the dye shield a second time. Always check the jets on the wand for clogging in order to avoid streaking.

As you can see, the formula is simple. Just decide on the color you want to achieve, determine what the missing ingredients are, then use the color of dye that will achieve the best results.

3. HOW TO DETERMINE WHICH COLORS TO USE

So now that you have the story of colors, what they are, and how to blend them, how do you know what colors to use on a given job? Keep in mind that you are always adding color when you are dyeing carpet. If you are adding color, you have to answer an obvious question. That question is: **"What's missing? Let's see how this works.**

If you have a yellow carpet, and the target color is Green, what is the missing complimentary color to Yellow? Blue. You need Blue to make the Yellow go to Green. But as we have already noted, because the topcoat is a lens, through which the original color will be seen, you need to use the target color and the missing color together for best results. One more word of advice: **Try to practice looking at colors in terms of their primary color makeup.** When you see a Brown, look to see how strong the Blue in it is, how strong the Red and Yellow, too. You will get better the more you try.

Below, and on the pages to follow, are some color charts to help you choose what colors to use, and when to use them. Try to use these charts as little as possible so that you do not become too dependent on them. Remember, mixing colors and dyeing is like cooking. The best chefs cook by "feel". When they give recipes, its hard for them to give exact ones, because they do not measure what they add, they just use a pinch or a dash of this or that. Do not get too dependent on remembering specific formulas. Learn to "feel".

ON COLOR CHANGES

4. ONE COMMON COLOR FADING PROBLEMS

ORIGINAL COLOR CARPET	PRIMARY INGREDIENTS	COLOR AFTER FADING	MISSING COLOR IN FADED AREA
Green	Blue/Yellow	Yellow	**Blue**
Brown	Red/Yellow/Blue	Orange Yellow Green	**Blue** **Violet *** (Red & Blue) **Red**
Tan	Yellow/Red/Blue	Yellow Orange Green	**Light Violet *** (Pink & Light Blue) **Light Blue** **Light Red**
Chestnut Brown (reddish)	Red/Yellow/Blue	Orange Yellow Tan Green	**Blue** **Violet** (shaded to Red; Pink & Light Blue) **Orange** (Pink & Yellow) **Red**
Rust	Red/Yellow/Blue	Orange Yellow Tan	**Medium Blue*** (possible Light Green/Yellow & light Blue **Reddish Brown*** (Light Red & Light Green) **Light Reddish Brown** (Light Pink & Light green)
Golden Brown	Yellow/ Red/Blue	Yellow Green Orange	**Light Brown*** **Light Red** **Light Blue**

*** NOTE:** When blending colors back in, you may find it necessary to use only primary colors in order to have maximum control over shading. Then you can adjust your results by varying the darkness of the primaries you use.

ON COLOR CHANGES

5. COLOR CHANGE OPTION CHART

ORIGINAL COLOR	CAN GO TO	USING NAMCO'S COLOR (S)
White *	Any Color	Any Color
Beige, Tan, Gold, Yellow	Dark Tan Light Brown Brown Dark Brown Rust Dark Rust	Tan and/or Brown Brown Brown and/or Dark Rust Dark Rust & Dark Brown Rust Dark Rust
Beige, Tan	Mauve	Burgundy
Brown	Dark Brown	Dark Brown, or Dark Brown & Dark Rust
Rust	Dark Rust Dark Brown	Dark Rust Dark Brown, or Brown & Blue
Pink	Brown Rust Dark Rust Violet Mauve	Dark Brown or Brown Tan or Rust Brown or Dark Rust Blue (diluted) Burgandy
Orange * *	Rust Dark Rust Burnt Orange Brown	Brown and/or Tan Brown and/or Dark Rust Tan Dark Brown or Dark Brown & Blue or Dark Brown, Blue & Yellow

ON COLOR CHANGES

5. COLOR CHANGE OPTION CHART

ORIGINAL COLOR	CAN GO TO	USING NAMCO'S COLOR (S)
Light Blue	Dark Blue Brown Violet Green Grey Medium Blue Charcoal Grey	Dark Blue Rust Brown/Orange (diluted)/Tan/Dark Rust Red (diluted to Pink) Yellow or Green Grey Blue Dark Brown & Blue
Light Green * * *	Dark Green Brown Charcoal Grey Dark Rust	Blue/Green/Forest Green Rust Brown/Dark Rust Dark Brown & Blue Dark Rust
Violet (light)	Brown Dark Rust	Yellow/Gold/Tan/Orange Dark Rust
Red * * * *	Maroon	Blue and/or Dark Blue
Grey	Blue (if pastel Grey) Green (if pastel Grey) Brown	Blue and/or Dark Blue Green or Forest Green Dark Rust

* When going from white to another color, be extremely careful to avoid splotches. any error shows up on white.

* * Orange to a true Brown without Red highlights is difficult, & may require more than one application.

* * * Green to Brown is most successful on Light Green carpets, & may require more than one application.

* * * * Red is the hardest color to kill; usually results in Red overtones.

ON COLOR CHANGES

6. SHADING SECONDARY COLORS TO GET TERTIARY COLORS

The must commonly recognized tertiary colors are Brown, Grey, and Black. Being tertiary, they are composed of all three primary colors. The difference between these tertiary colors is the ratio of their component colors. Let's look at each of these three colors.

Virtually all shades of the color we recognize as Brown are basically Orange dulled with Blue. Let's examine this closer. Remember that Orange is a 50% / 50% mixture of yellow and Red. Orange is also other variations of Yellow and Red. In fact, most combinations of Red and Yellow, from 90% Yellow / 10% Red, to 20% Yellow / 80% Red are recognizable as Orange. Blue has such a dominant effect on the Yellow/Red combinations we know as Orange, that as little as 9% Blue will cause them to become recognizable as other colors.

Most Shades of Brown are 15% to 20% Blue. This being so, the major difference we see from one Brown to another is the result of varying the ratio of Yellow to Red. For instance, the colors we call Tan are mostly Yellow.

7. DYE CHART

Listed below are our present dye colors, followed by their dominant and lesser primary colors. Suggested applications for each color are listed in the right hand column.

Always try for 140º water for best colors and consistency. Always test colors before starting the dye job. Look at the color of the dye bath and test on the carpet in a closet or in an inconspicuous spot.

IF BROWNS ARE RED OR PURPLE:
ADD GOLD.

IF BROWNS ARE GREEN:
ADD RED.

IF CHARCOAL OR GRAY IS BLUE:
ADD RUST.

IF CHARCOAL OR GRAY IS PURPLE:
ADD GOLD.

NOTE:

This chart is to be used as a general guideline to simplify choosing the appropriate color(s) for various applications. **IT IS NOT A REPLACEMENT** for actually looking at the carpet to be dyed.

ON COLOR CHANGES

7. DYE CHART

NAMCO DYE COLOR	INGREDIENTS NAMCO MIX	SUGGESTED USES ON CARPETS
Red	Red	Red to Red Enriches Mauve Blue to Maroon Dk. Brown to Cocoa Brown Helps neutralize green.
Burgundy	Red/Blue/Yellow	Tan to Mauve Mauve to Burgundy Light Blue to Deep Mauve Light Green to Deep Rust Light Grey to Deep Mauve
Dark Rust	Red/Blue/Yellow	Gold to Brown Light Blue to Rust Brown Beige to Brown Yellow to Brown Brown to Rust Brown Light Green to Brown Orange to Rust or Dark Rust Enrichens any Medium Dark Brown
Green	Blue/Yellow	Green to Green
Forest Green	Blue/Yellow/Red	Yellow to Green Helps neutralize Red
Orange	Red/Yellow	Orange to Orange Light Med. Blue to Brown Brown to Rust Brown Dk. Brown to Cocoa Brown Helps neutralize Green
Steel Grey/Grey	Yellow/Red/Blue	Grey to Grey Pastel Beige to Grey
Black	Yellow/Red/Blue	Grey to Charcoal Grey Black to Black

ON COLOR CHANGES

8. COLOR STREAKING AFTER DYEING CARPETS

Color clean after dyeing carpets using diluted dye at 1/3 strength. Use the same process as cleaning the carpets with the floor wand, but only apply Dye where light streaks exist. Make sure you release the solution lever at least 2 - 3 inches before the end of the stroke to feather in dye. This will eliminate a "Run". For example: Paint Spray Can, If you do not release the trigger at the end of each stroke, you will create an over spray of paint.

Another process is to mist Sky Blue dye in the light streaks on Earth tones and Grays. On Blues and Greens, mist the same color in a spray bottle as being dyed. Remember; use a weak solution of dye. You can always go darker.