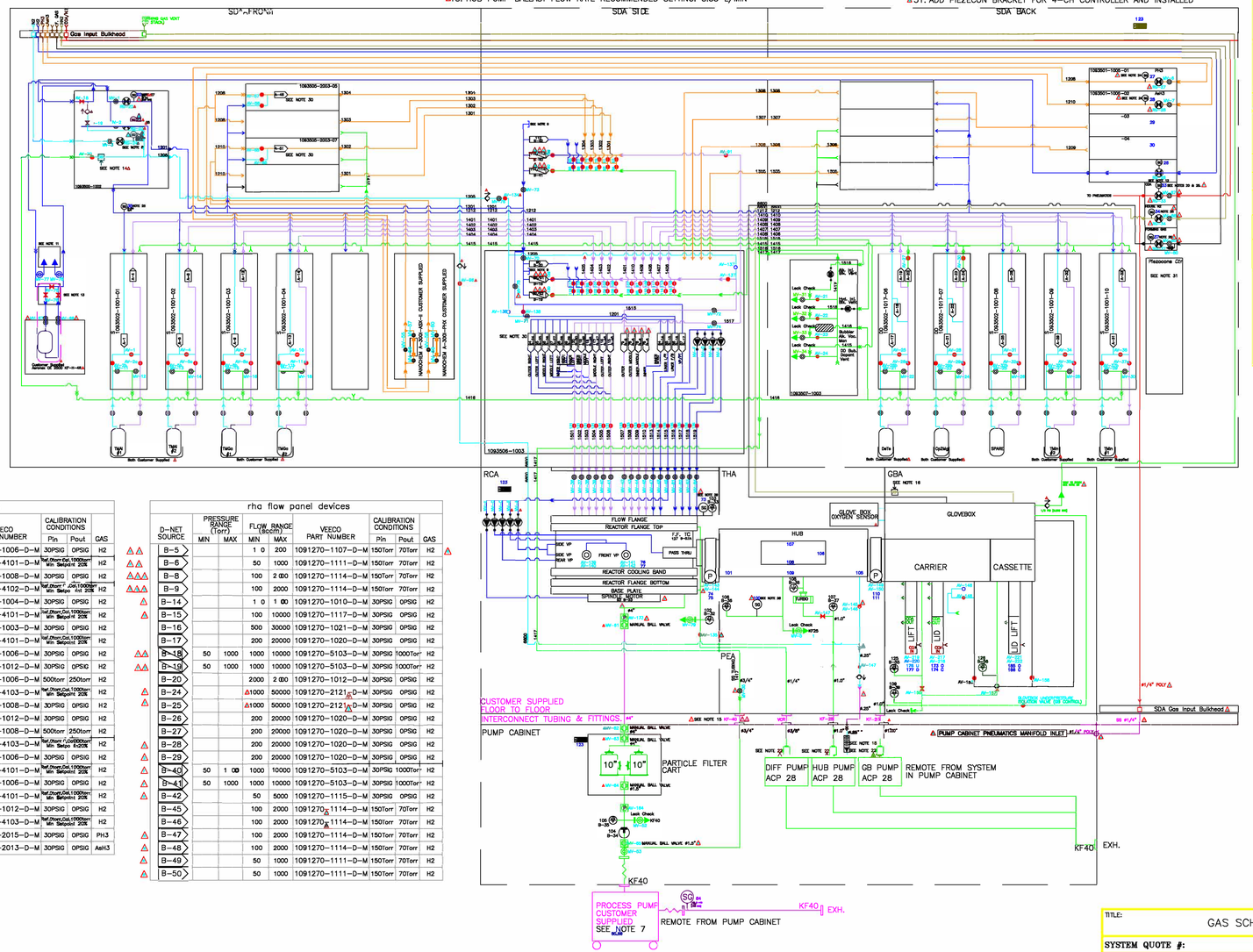
NOTES:
1. ALL MFC'S AND PC'S TO BE METAL SEALED.
2. MANUAL VALVES COLOR CODE:
   WHITE – VAC  RED – H2
   BLUE – AIR  GREEN – N2
   YELLOW – TOXICS
3. BUBBLER LEG INLETS & OUTLET LEGS ARE 1/8" DIA.
4. VEECO DOES NOT SUPPLY SOURCE MATERIAL.
5. VENDOR TO SUPPLY LOCKOUT TAGOUT DEVICES.
6. ALL LOREX PIEZOCON'S INCLUDE FEEDBACK CONTROL AND WILL BE ALLOCATED AN ANALOG CHANNEL.
7. PROCESS PUMP IS ROMOTE FROM SYSTEM IN CUSTOMER SUPPLIED ABATEMENT CABINET LOCATED IN FACILITY BASEMENT
8. N2 GAGE MUST BE 30"HG TO 100 PSIG (7 BAR)
9. OPTIONAL PHANTOM HYDRIDE AND ALKYL CAPPED PORTS
10. ALL BUBBLER STICKS HAVE SPOOL PIECES FOR BINARY GAS MONITOR
11. FUTURE PD CELL
12. H2 GAGE MUST BE 0 TO 300 PSIG & REGULATOR IS 600 PSIG IN/250 PSIG OUT (MAX) △
13. AV-75,76 250 LB. MAX
14. 20um VCR FILTER GASKET P/N 1015365 INSTALLED AS ORIFICE RESTRICTOR.
15. ALL INTERFACE BULKHEADS FOR SDA VENT LINE TO HAVE VITON SEALS (KF-40) △△
16. 60um VCR FILTER GASKET P/N 1022671 INSTALLED AS ORIFICE RESTRICTOR.
△17. NEEDLE VALVE CONFIGURATION & VEECO RECOMMENDED SETTINGS:
NV A – SIDE VIEWPORTS – 2" DIA. – QTY. 2 X 250cc/VP = 500 cc
NV B – FRONT VIEWPORTS – 3" DIA. – QTY. 2 x 500cc = 1000cc
NV C – REAR VIEWPORT – 3" DIA. – QTY. 1 x 500cc = 500cc
NV D – PASSTHRU PURGE = 2500cc
NV E – SPINDLE PURGE – IF USING Cl or Br AS PROCESS GAS = 500cc, ALL OTHER PROCESS GASSES =100cc.
NV F – PYRO PURGE #1 = 1750cc
NV G – PYRO PURGE #2 = 1750cc
NV H – PYRO PURGE #3 = 1750cc
NV I – PYRO PURGE #4 = 1750cc
NEEDLE VALVE SETTINGS TO BE SET WITH REACTOR PRESSURE AT 50torr AND BACK PRESSURE @ 25psi.
△18. HUB PUMP BALLAST FLOW RATE RECOMMENDED SETTING: 8.33 L/MIN
△△19. THIS GSD APPLIES TO SYSTEMS 28976 & 30874.
△20. CDA SG SET FOR 80 PSI [5.52 BAR], TRIP AT: 60 PSI [4.14 BAR]
△21. ALL FILTER GASKETS TO BE LABELED AT INSTALLATION LOCATION
△22. ACP–28 PARTICLE FILTERS NOT ON SYSTEMS 28976 & 30874
△23. FLEXIBLE LINE FROM GLOVEBOX TO BULKHEAD ON GAS INPUT MANIFOLD.
△24. SWITCH GAUGE: 0–100, N/O
△25. SWITCH GAUGE: 0–100, 60 PSI [4.14 BAR], TRIP AT 25 PSI [1.73 BAR].
△26. SWITCH GAUGE: 30–0–100, N/O
△27. SWITCH GAUGE: 0–100, N/O, 30 PSI [2.07 BAR]
△28. SWITCH GAUGE: –30 0 +15, 2 PSI [0.138 BAR]
△29. SWITCH GAUGE: 2 PSI [0.138 BAR]
△30. LABEL A46 AS PH3, A51 AS AsH3, B24,B25 AS H2 ON OUTSIDE OF MFC CAN
△31. ADD PIEZOCON BRACKET FOR 4–CH CONTROLLER AND INSTALLED

| REV | ECO | ZONE | DESCRIPTION | DATE | CHANGED BY | APPVD. BY |
|---|---|---|---|---|---|---|
| A | 15497 | – | RELEASED | 5/03/07 | DMS | MDF |
| B | 15466 | – | UPDATED GLOVEBOX PLUMBING | 05/09/07 | JRV | J RV |
| C | 15604 | – | CHANGE B15 from –1007 TO –1017 | 05/18/07 | RJM | MDF |
| D | 15625 | – | REVISE TABLE B–8 WAS B–7, B–9 WAS B–8 B–28 WAS B–51, B–29 WAS B–52, B–24 WAS –1022, B–25 WAS –1023. ADD HUB VENT. H2 PURIFIER WAS 1063508–1003 ADDED NOTE 14 FOR 20 um FILTER GASKET | 05/29/07 | JRV | J RV |
| E | 15635 & 15698 | – | UPDATE GB & HUB VENT PER DESIGN REVIEW | 06/04/07 | J RV | J RV |
| F | 15848 | – | REVISE LIQ VALVES & ADDRESS FURNACE FOR MFCs B–28, B–29 & B–30 REVISE TABLE B–8 & B–9 WAS B–7 & B–8 REVISE TABLE B–14 WAS B–13 ADD B–15 THRU B–17 REVISE TABLE B–18 WAS B–14 ADD B–19 THRU B–24 REVISE TABLE B–25 WAS B–15 ADD B–26 THRU B–42 REVISE TABLE B–43 WAS B–16 ADD B–44 THRU B–50 REVISE A–4 WAS A–3 A–5 WAS A–4 A–8 WAS A–5 A–9 WAS A–6 A–12 WAS A–7 A–13 WAS A–8 A–14 WAS A–9 A–17 WAS A–10 A–18 WAS A–11 A–19 WAS A–12 A–20 WAS A–13 A–21 WAS A–14 A–22 WAS A–15 A–23 WAS A–16 A–24 WAS A–17 A–25 WAS A–18 A–26 WAS A–19 A–27 WAS A–20 A–28 WAS A–21 A–29 WAS A–22 A–30 WAS A–23 A–31 WAS A–24 A–32 WAS A–25 A–46 WAS A–26 A–51 WAS A–27 | 08/24/07 | JRV | JRV |
| | 15859 | – | DEVICES A–4,A–5 WAS A–3,A–4 ADD A–6 TO A–26 B–16,B–18,B–24,B–25,B–26 B–40 WAS –1001,–1002, –1003,–1004,–1005,–1006,–1007,–1008,–1009,–1010 | 9/11/07 | MC | MDF |
| G | 15920 | – | REVISE PIEZOS CHANGE B2 TO B3 FROM C–H2 TO C–100 REVISE SWITCH GAUGE TO 0–100 TO 30–0–100 REVISE ALGR. MFC "ANALOG & D–NET LABELS" IN TABLE ADD NOTE 19 FOR ADDITIONAL VENT VALVES TO BE INSTALLED FOR ALL CLOSURES DUE TO THIS CHANGE TO 1063000 REVISE ALL CHECK VALVES TO UPDATE SYMBOLS ADD INTERNAL VALVE SETTINGS NOTE & ADD FILTER GASKET TO BE INSTALLED AT ALL CLOSURES DUE TO THIS CHANGE TO NOZZLE VALVE SETTING OF REACTOR N ON 1063007–1003 DELETE GAS LINE LABEL TO BUILDING BKT ON SYSTEM 1 REVISE GAS LINE LABEL FROM PUMP CABINET TO PUMP MOTOR TO PUMP CABINET | 09/26/07 | J RV | J RV |
| H | 16045 | – | ADD HUB PUMP BALLAST COMPONENTS AND NOTES 18 & 19. | 11/02/07 | J RV | J RV |
| J | 16184 | – | ADD "FOR 2–CH CONTROLLER" TO PIEZO LABEL ADD "FOR 4–CH CONTROLLER" TO PIEZO LABEL REVISE SWITCH GAUGE TO 0–100, N/O, 30 PSI [2.07 BAR] ADD WALL MOUNT BKT FOR 4–CH PIEZO, W–4,S–4 ADD VCR GASKET TO PIEZO, W–4,S–4 REVISE NOTE 31 REVISE LIQ VALVE SYMBOL FROM V–1 TO V–2 | 02/06/08 | J RV | JRV |
| K | 16184 | – | ADD ACP–28 PARTICLE FILTERS AND NOTE 22 | 02/06/08 | J RV | J RV |
| L | 16184 | – | REVISE INLET GAS MFC DESIGNATIONS (DUPLICATIVE W/ PURGE) ADD MFC B–31 & B–32 DELETE NON–EXISTANT DO–179 AND DI–78 FROM REACTOR. ADD HUB INSTL. REMOVE KIT 1063–007 F/A 08–03900 REVISE AV DESIGNATIONS FROM AV–68 TO AV–69A, REVISE LOCATION OF AV–68 (NOW NC) SCHEMATICALLY ADD GLOVEBOX O2 SENSOR, UPDATE NOTE 19 | 02/20/08 | J RV | J RV |
| M | 16584 | – | REVISE GAS LINE DESIGNATIONS FROM A–28 TO A–30 REVISE GAS LINE DESIGNATIONS FROM A–29 TO A–31 REVISE LOCATION OF A–28 (NOW NC) SCHEMATICALLY ADD GLOVEBOX O2 SENSOR, UPDATE NOTE 19 | 05/08/08 | J RV | J RV |
| N | 16630 | – | REVISE GAS LINE DESIGNATIONS TO SOCALL FOR PIC CONFIGURATION REVISE NOTE 19 TO REFLECT PIC PROVISIONS ADD NOTE 23 FOR USE OF SS TUBING | 05/20/08 | JRV | J RV |
| P | 16662 | – | | 6/03/08 | JRV | J RV |
| R | 11136 | | | | | |

## LEGEND

ORANGE = HYDRIDE GAS LINES
VIOLET = ALKYL LINES
GREEN = "VENT" GAS LINES
CYAN = NITROGEN/VACUUM LINES
BLUE = HYDROGEN GAS LINES
BLACK = VEECO MODULES
RED = CDA
GOLD = HOUSE N2
= DUAL FLOW AIR OPERATED VALVE
= NORMALLY CLOSED AIR OPERATED VALVE
= NORMALLY OPEN AIR OPERATED VALVE
= NORMALLY CLOSED HIGH PRESSURE VALVE
= NORMALLY OPEN HIGH PRESSURE VALVE
NEEDLE VALVE
MANUAL VALVE
CHECK VALVE
THROTTLING VALVE
PNEUMATIC GATE VALVE
REGULATING VALVE
MANUAL BALL VALVE
PNEUMATIC BALL VALVE
MASS FLOW CONTROLLER (MFC)
MASS FLOW METER (MFM)
PRESSURE CONTROLLER (PC)
MFM / PC
SWITCH GAUGE
BARATRON GAUGE
PRESSURE GAUGE
DIFFERENTIAL PRESSURE GAUGE
ION GAUGE
CONVECTRON GAUGE
LOW PRESSURE REGULATOR
PRESSURE REGULATOR
10" PARTICLE FILTER
PALL FILTER
BINARY GAS MONITOR
FILTER
TOXIC MONITOR MCA "SNIFFER" PORT
LEAK DETECTOR PORT
SPOOL PIECE
BATH
ALKYL BUBBLER (FROM ALKYL SUPPLIER)
ROTOMETER
FLANGE
SWAGELOK
VCR FITTING




### SDA DEVICES

| | D–NET SOURCE | PRESSURE RANGE (Torr) MIN | PRESSURE RANGE (Torr) MAX | FLOW RANGE (sccm) MIN | FLOW RANGE (sccm) MAX | VEECO PART NUMBER | CALIBRATION CONDITIONS Pin | CALIBRATION CONDITIONS Pout | GAS |
|---|---|---|---|---|---|---|---|---|---|
| △ | A–1 | | | 2 | 200 | 1091270–1006–D–M | 30PSIG | 0PSIG | H2 |
| △ | A–4 | 50 | 1 000 | 1 0 | 50 | 1091270–4101–D–M | Ref.(Nom.Cal.1000torr Min Setpoint 20t | | H2 |
| | A–5 | | | 10 | 500 | 1091270–1008–D–M | 30PSIG | 0PSIG | H2 |
| △ | A–8 | 500 | 1000 | 50 | 500 | 1091270–4102–D–M | Ref.(Nom.F.Cal.1000torr Min Setpo int 20t | | H2 |
| | A–9 | | | 2 | 100 | 1091270–1004–D–M | 30PSIG | 0PSIG | H2 |
| △ | A–12 | 100 | 1 000 | 10 | 100 | 1091270–4101–D–M | Ref.(Nom.Cal.1000torr Min Setpoint 20t | | H2 |
| △ | A–13 | | | 1 | 50 | 1091270–1003–D–M | 30PSIG | 0PSIG | H2 |
| △ | A–14 | 200 | 1 000 | 10 | 200 | 1091270–4101–D–M | Ref.(Nom.Cal.1000torr Min Setpoint 20t | | H2 |
| △△ | A–17 | | | 2 | 200 | 1091270–1006–D–M | 30PSIG | 0PSIG | H2 |
| △△ | A–18 | | | 50 | 2000 | 1091270–1012–D–M | 30PSIG | 0PSIG | H2 |
| | A–19 | | | 2 | 200 | 1091270–1006–D–M | 500torr | 250torr | H2 |
| △ | A–20 | 200 | 1000 | 100 | 2000 | 1091270–4103–D–M | Ref.(Nom.Cal.1000torr Min Setpoint 20t | | H2 |
| △ | A–21 | | | 1 0 | 500 | 1091270–1008–D–M | 30PSIG | 0PSIG | H2 |
| | A–22 | | | 50 | 2000 | 1091270–1012–D–M | 30PSIG | 0PSIG | H2 |
| | A–23 | | | 1 0 | 500 | 1091270–1008–D–M | 500torr | 250torr | H2 |
| △ | A–24 | 200 | 1000 | 100 | 2 000 | 1091270–4103–D–M | Ref.(Nom.Cal.1000torr Min Setpo 20t | | H2 |
| △ | A–25 | | | 2 | 200 | 1091270–1006–D–M | 30PSIG | 0PSIG | H2 |
| △ | A–28 | 200 | 1000 | 10 | 200 | 1091270–4101–D–M | Ref.(Nom.Cal.1000torr Min Setpoint 20t | | H2 |
| △ | A–29 | | | 2 | 200 | 1091270–1006–D–M | 30PSIG | 0PSIG | H2 |
| △△ | A–30 | 200 | 1000 | 10 | 200 | 1091270–4101–D–M | Ref.(Nom.Cal.1000torr Min Setpoint 20t | | H2 |
| | A–31 | | | 50 | 2000 | 1091270–1012–D–M | 30PSIG | 0PSIG | H2 |
| △ | A–32 | 200 | 1000 | 100 | 2000 | 1091270–4103–D–M | Ref.(Nom.Cal.1000torr Min Setpoint 20t | | H2 |
| | A–46 | | | 100 | 5000 | 1091270–2015–D–M | 30PSIG | 0PSIG | PH3 |
| | A–51 | | | 50 | 2000 | 1091270–2013–D–M | 30PSIG | 0PSIG | AsH3 |

### rha flow panel devices

| | D–NET SOURCE | PRESSURE RANGE (Torr) MIN | PRESSURE RANGE (Torr) MAX | FLOW RANGE (sccm) MIN | FLOW RANGE (sccm) MAX | VEECO PART NUMBER | CALIBRATION CONDITIONS Pin | CALIBRATION CONDITIONS Pout | GAS |
|---|---|---|---|---|---|---|---|---|---|
| △△ | B–5 | | | 1 0 | 200 | 1091270–1107–D–M | 150Torr | 70Torr | H2 |
| △△ | B–6 | | | 50 | 1000 | 1091270–1111–D–M | 150Torr | 70Torr | H2 |
| △△△ | B–8 | | | 100 | 2 000 | 1091270–1114–D–M | 150Torr | 70Torr | H2 |
| △△△ | B–9 | | | 100 | 2000 | 1091270–1114–D–M | 150Torr | 70Torr | H2 |
| △ | B–14 | | | 1 0 | 1 00 | 1091270–1010–D–M | 30PSIG | 0PSIG | H2 |
| △ | B–15 | | | 100 | 10000 | 1091270–1117–D–M | 30PSIG | 0PSIG | H2 |
| | B–16 | | | 500 | 30000 | 1091270–1021–D–M | 30PSIG | 0PSIG | H2 |
| | B–17 | | | 200 | 20000 | 1091270–1020–D–M | 30PSIG | 0PSIG | H2 |
| △△ | B–18 | 50 | 1000 | 1000 | 10000 | 1091270–5103–D–M | 30PSIG | 1000Torr | H2 |
| △△ | B–19 | 50 | 1000 | 1000 | 10000 | 1091270–5103–D–M | 30PSIG | 1000Torr | H2 |
| | B–20 | | | 2000 | 2 000 | 1091270–1012–D–M | 30PSIG | 0PSIG | H2 |
| △ | B–24 | | | △1000 | 50000 | 1091270–2121–D–M | 30PSIG | 0PSIG | H2 |
| △ | B–25 | | | △1000 | 50000 | 1091270–2121–D–M | 30PSIG | 0PSIG | H2 |
| | B–26 | | | 200 | 20000 | 1091270–1020–D–M | 30PSIG | 0PSIG | H2 |
| | B–27 | | | 200 | 20000 | 1091270–1020–D–M | 30PSIG | 0PSIG | H2 |
| | B–28 | | | 200 | 20000 | 1091270–1020–D–M | 30PSIG | 0PSIG | H2 |
| △ | B–29 | | | 200 | 20000 | 1091270–1020–D–M | 30PSIG | 0PSIG | H2 |
| △ | B–40 | 50 | 1 00 | 1000 | 10000 | 1091270–5103–D–M | 30PSIG | 1000Torr | H2 |
| △ | B–41 | 50 | 1000 | 1000 | 10000 | 1091270–5103–D–M | 30PSIG | 1000Torr | H2 |
| △ | B–42 | | | 50 | 5000 | 1091270–1115–D–M | 30PSIG | 0PSIG | H2 |
| | B–45 | | | 100 | 2000 | 1091270–1114–D–M | 150Torr | 70Torr | H2 |
| | B–46 | | | 100 | 2000 | 1091270–1114–D–M | 150Torr | 70Torr | H2 |
| △ | B–47 | | | 100 | 2000 | 1091270–1114–D–M | 150Torr | 70Torr | H2 |
| △ | B–48 | | | 100 | 2000 | 1091270–1114–D–M | 150Torr | 70Torr | H2 |
| △ | B–49 | | | 50 | 1000 | 1091270–1111–D–M | 150Torr | 70Torr | H2 |
| △ | B–50 | | | 50 | 1000 | 1091270–1111–D–M | 150Torr | 70Torr | H2 |

TITLE: GAS SCHEMATIC DIAGRAM, K475

SYSTEM QUOTE #:
SYSTEM TYPE: LDM
SYSTEM SIZE: NA
DIMENSIONS IN BRACKETS [xxx] ARE IN CENTIMETERS.
CAD GENERATED DRAWING – NO MANUAL REVISIONS PERMITTED
NA
NA
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
BREAK SHARP EDGES & DEBURR
TOLERANCES (EXCEPT AS NOTED)
DECIMAL .XX ±.01
.XXX ±.005
.XXXX ±.0005
FRACTIONAL ±1/64
ANGULAR ±1/2°
FILLETS R.015
FINISH 125
THIRD ANGLE PROJECTION
INTERPRET DRAWING PER ANSI Y14.5M–1982.
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DWG. NO. GSD3208
SIZE D
DATE: 03/06/2007
SCALE: AS NOTED NONE
REV. R
ENG. DMS
DWN. MC
CHKR. DMS
APVD.
SHEET 1 OF 1